Inspection Report For Well: UT20736 - 04322

U.S. Environmental Protection Agency
Underground Injection Control Program, 8ENF-T
999 18th Street, Suite 300, Denver, CO 80202-2466

This form was printed on 9/24/2013

INSPECTOR(S): Lead: Roberts, Sarah — Date: 10/10/2013
Others: Ajayi, Christopher — Time: 9:25 am / pm

OPERATOR (only if different): _____

REPRESENTATIVE(S): Chad Stevenson

PRE-INSPECTION REVIEW

Petroglyph Operating Company, Inc

Well Name:	Ute Tribal 04-01		
Well Type:	Enhanced Recovery (2R)		
Operating Status:	AC (ACTIVE) as of 12/31/2002		
Oil Field:	Antelope Creek (Duchesne)		
Location:	NENE S4 T5S R3W		
Indian Country:	X, Uintah and Ouray		
Last Inspection:	8/28/2012	***Allowable Inj Pressure:***	1975 /
Last MIT:	Pass 5/1/2012	***Annulus Pressure From Last MIT:***	1040

BLACK = POSSIBLE VIOLATION GREY = DATA MISSING

INSPECTION TYPE: (Select One)
☐ Construction / Workover ☐ Response to Complaint ☐ Other
☐ Plugging ☒ Routine
☐ Post-Closure ☐ Witness MIT

ICIS Entered
Date 12/30/13
Initials DB

OBSERVED VALUES:

Tubing Gauge:	☒ Yes ☐ No	Pressure: U: 1851 / L: ____ psig Gauge Range: Scada psig	Gauge Owner:	☐ EPA ☒ Operator
Annulus Gauge:	☐ Yes ☐ No	Pressure: 0 psig Gauge Range: ____ psig	Gauge Owner:	☐ EPA ☐ Operator
Bradenhead Gauge:	☐ Yes ☐ No	Pressure: ____ psig Gauge Range: ____ psig	Gauge Owner:	☐ EPA ☐ Operator
Pump Gauge:	☐ Yes ☐ No	Pressure: ____ psig Gauge Range: ____ psig	Gauge Owner:	☐ EPA ☐ Operator

Operating Status: (Select One)
☒ Active ☐ Not Injecting ☐ Plugged and Abandoned
☐ Being Reworked ☐ Production ☐ Under Construction

U2 Entered
Date 12/17/13
Initial

TAB	GREEN	BLUE	CBI
		1	

See page 2 for photos, comments, and site conditions.

Inspection Report For Well: UT20736 - 04322 (PAGE 2)

PHOTOGRAPHS: ☐ Yes ☒ No List of photos taken: _____

Comments and site conditions observed during inspection: _____

GPS: GPS File ID: _____

Signature of EPA Inspector(s): _____ _____ _____

☐ Data Entry ☐ Compliance Staff ☐ Hard Copy Filing

NOTICE OF INSPECTION

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION VIII, 999 18TH STREET - SUITE 500
DENVER, COLORADO 80202-2405

Date: 12/16/13
Hour: 8:00a

Notice of inspection is hereby given according to Section 1445(b) of the Safe Drinking Water Act (42 U.S.C. §300f et seq.).

Firm Name: Petroglyph Operating, Inc.

Firm Address: Roosevelt, UT, Antelope Creek Oil Field

REASON FOR INSPECTION:

For the purpose of inspecting records, files, papers, processes, controls and facilities, and obtaining samples to determine whether the person subject to an applicable underground injection control program has acted or is acting in compliance with the Safe Drinking Water Act and any applicable condition of permit or rule authorization.

SECTION 1445(b) of the SAFE DRINKING WATER ACT is quoted below:

Section 1445(b)(1): Except as provided in Paragraph (2), the Administrator, or representatives of the Administrator duly designated by him, upon presenting appropriate credentials, and a written notice to any supplier of water or other person subject to (a), or person subject (A) a national primary drinking water regulation prescribed under Section 1412(B) an applicable Underground Injection Control Program, or (C) any requirement to monitor an unregulated contaminant pursuant to subsection (a), or person in charge of any of the property of such supplier or other person referred to in clause (A), (B), or (C), is authorized to enter any establishment, ... facility, or other property of such supplier or other person in order to determine whether such supplier or other person has acted or is acting in compliance with this title, including for this purpose, inspection, at reasonable times, of records, files, papers, processes, controls, and facilities, or in order to test any feature of a public water system, including its raw water source. The Administrator or the Comptroller General (or any representative designated by either) shall have access for the purpose of audit and examination to any records, reports, or information of a grantee which are required to be maintained under subsection (a) or which are pertinent to any financial assistance under this title.

Sarah Roberts
Inspector's Name & Title (Print)

Inspector's Signature

EPA R8 3560-1 (8-89)

Original - Regional Office Copy
Yellow Copy - Operator Copy

OMB No. 2040-0042 Approval Expires 11/30/2014

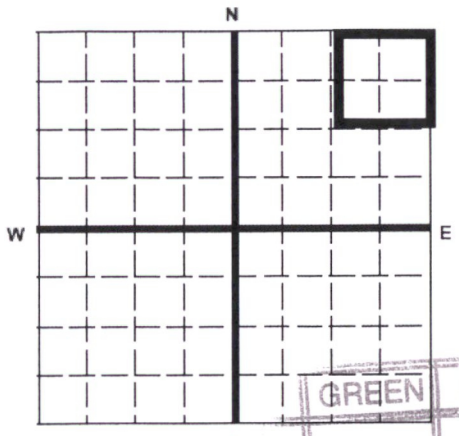
United States Environmental Protection Agency
Washington, DC 20460

ANNUAL DISPOSAL/INJECTION WELL MONITORING REPORT

Name and Address of Existing Permittee
Petroglyph Operating Company, Inc. 2258
P.O. Box 7608
Boise, Idaho 83709

Name and Address of Surface Owner
Ute Indian Tribe
P.O. Box 70
Ft. Duchesne, Utah, 84026

Locate Well and Outline Unit on Section Plat - 640 Acres



State	County	Permit Number
Utah	Duchesne	UT2736-04322

Surface Location Description
___ 1/4 of ___ 1/4 of NE 1/4 of NE 1/4 of Section 4 Township 5S Range 3W

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface Location 1331 ft. frm (N/S) N Line of quarter section
and 1227 ft. from (E/W) E Line of quarter section.

U2 Entered
Date 3/24/17
Initial DB

WELL ACTIVITY	TYPE OF PERMIT
[ ] Brine Disposal	[ ] Individual
[X] Enhanced Recovery	[X] Area
[ ] Hydrocarbon Storage	Number of Wells 111

Lease Name Ute Indian Tribe Well Number UTE TRIBAL 04-01

GREEN BLUE CBL 2

		INJECTION PRESSURE		TOTAL VOLUME INJECTED		TUBING -- CASING ANNULUS PRESSURE (OPTIONAL MONITORING)	
MONTH	YEAR	AVERAGE PSIG	MAXIMUM PSIG	BBL	MCF	MINIMUM PSIG	MAXIMUM PSIG
January	16	1900	1927	1072		0	0
February	16	1926	1944	1043		0	0
March	16	1936	1945	1101		0	0
April	16	1915	1935	999		0	0
May	16	1901	1945	966		0	0
June	16	1916	1943	1153		0	0
July	16	1897	1897	1026		0	0
August	16	1881	1886	962		0	0
September	16	1910	1940	1073		0	0
October	16	1909	1912	1255		0	0
November	16	1886	1912	931		0	0
December	16	1883	1895	1026		0	0

Certification

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title *(Please type or print)*	Signature	Date Signed
Chad Stevenson, Water Facilities Supervisor		03/21/2017

EPA Form 7520-11 (Rev. 12-11)

Multi-Chem Analytical Laboratory
1553 East Highway 40
Vernal, UT 84078

multi-chem
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Units of Measurement: **Standard**

Water Analysis Report

Production Company:	**PETROGLYPH OPERATING CO INC - EBUS**	Sales Rep:	**James Patry**
Well Name:	**UTE TRIBAL 04-01, TT, DUCHESNE**	Lab Tech:	**Kaitlyn Natelli**
Sample Point:	**Well Head**		
Sample Date:	**1/6/2017**		
Sample ID:	**WA-345341**		

Scaling potential predicted using ScaleSoftPitzer from Brine Chemistry Consortium (Rice University)

Sample Specifics

Test Date:	1/25/2017
System Temperature 1 (°F):	300
System Pressure 1 (psig):	2000
System Temperature 2 (°F):	130
System Pressure 2 (psig):	50
Calculated Density (g/ml):	0.9985
pH:	7.30
Calculated TDS (mg/L):	1967.04
CO2 in Gas (%):	
Dissolved CO_2 (mg/L)):	49.00
H_2S in Gas (%):	
H2S in Water (mg/L):	0.00
Tot. SuspendedSolids(mg/L):	
Corrosivity(LangliерSat.Indx)	0.00
Alkalinity:	

Analysis @ Properties in Sample Specifics

Cations	*mg/L*	*Anions*	*mg/L*
Sodium (Na):	543.06	Chloride (Cl):	520.00
Potassium (K):	5.10	Sulfate (SO_4):	120.00
Magnesium (Mg):	21.67	Bicarbonate (HCO_3):	683.00
Calcium (Ca):	39.64	Carbonate (CO_3):	
Strontium (Sr):	1.00	Hydroxide(HO):	
Barium (Ba):	2.20	Acetic Acid (CH_3COO)	
Iron (Fe):	18.01	Propionic Acid (C_2H_5COO)	
Zinc (Zn):	4.59	Butanoic Acid (C_3H_7COO)	
Lead (Pb):	0.00	Isobutyric Acid ($(CH_3)_2CHCOO$)	
Ammonia NH_3:		Fluoride (F):	
Manganese (Mn):	0.15	Bromine (Br):	
Aluminum (Al):	0.10	Silica (SiO_2):	8.62
Lithium (Li):	2.64	Calcium Carbonate ($CaCO_3$):	
Boron (B):	0.89	Phosphates (PO_4):	3.25
Silicon (Si):	4.03	Oxygen (O_2):	

Notes:

(PTB = Pounds per Thousand Barrels)

		Calcium Carbonate		Barium Sulfate		Iron Sulfide		Iron Carbonate		Gypsum CaSO4·2H2O		Celestite SrSO4		Halite NaCl		Zinc Sulfide	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
130.00	50.00	0.34	11.97	1.21	1.23	0.00	0.00	2.04	12.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
149.00	267.00	0.42	14.46	1.12	1.21	0.00	0.00	2.16	12.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
168.00	483.00	0.55	18.07	1.05	1.19	0.00	0.00	2.31	13.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
187.00	700.00	0.69	21.49	1.01	1.18	0.00	0.00	2.46	13.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
206.00	917.00	0.84	24.55	0.97	1.17	0.00	0.00	2.61	13.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
224.00	1133.00	0.99	27.16	0.96	1.16	0.00	0.00	2.75	13.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
243.00	1350.00	1.15	29.28	0.95	1.16	0.00	0.00	2.90	13.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
262.00	1567.00	1.32	30.91	0.96	1.17	0.00	0.00	3.03	13.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
281.00	1783.00	1.49	32.11	0.98	1.17	0.00	0.00	3.16	13.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	2000.00	1.67	32.96	1.01	1.18	0.00	0.00	3.28	13.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Multi-Chem Analytical Laboratory
1553 East Highway 40
Vernal, UT 84078

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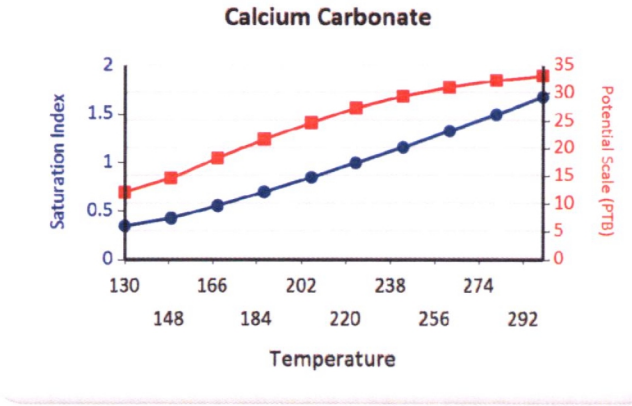
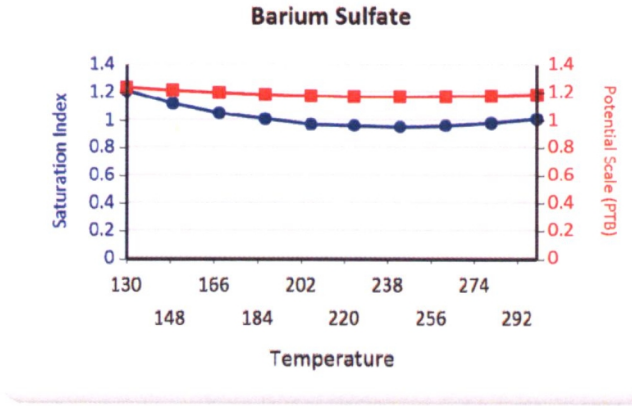
Water Analysis Report

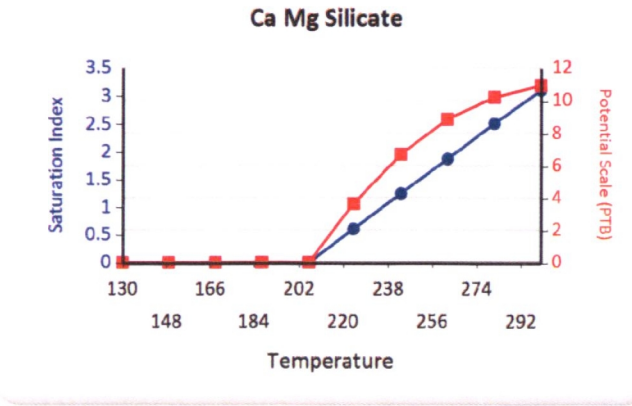
		Hemihydrate CaSO4~0.5H2O		Anhydrate CaSO4		Calcium Fluoride		Zinc Carbonate		Lead Sulfide		Mg Silicate		Ca Mg Silicate		Fe Silicate	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
130.00	50.00	0.00	0.00	0.00	0.00	0.00	0.00	1.21	2.88	0.00	0.00	0.00	0.00	0.00	0.00	5.15	12.75
149.00	267.00	0.00	0.00	0.00	0.00	0.00	0.00	1.44	2.97	0.00	0.00	0.00	0.00	0.00	0.00	5.74	13.16
168.00	483.00	0.00	0.00	0.00	0.00	0.00	0.00	1.70	3.02	0.00	0.00	0.00	0.00	0.00	0.00	6.57	13.54
187.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00	1.93	3.05	0.00	0.00	0.59	3.72	0.00	0.00	7.42	13.75
206.00	917.00	0.00	0.00	0.00	0.00	0.00	0.00	2.15	3.06	0.00	0.00	1.66	10.08	0.00	0.00	8.29	13.88
224.00	1133.00	0.00	0.00	0.00	0.00	0.00	0.00	2.35	3.07	0.00	0.00	2.72	15.38	0.61	3.63	9.16	13.94
243.00	1350.00	0.00	0.00	0.00	0.00	0.00	0.00	2.54	3.08	0.00	0.00	3.77	19.08	1.25	6.69	10.03	13.97
262.00	1567.00	0.00	0.00	0.00	0.00	0.00	0.00	2.71	3.08	0.00	0.00	4.80	21.10	1.88	8.85	10.90	13.99
281.00	1783.00	0.00	0.00	0.00	0.00	0.00	0.00	2.87	3.08	0.00	0.00	5.80	21.94	2.51	10.17	11.75	14.00
300.00	2000.00	0.00	0.00	0.00	0.00	0.00	0.00	3.01	3.08	0.00	0.00	6.78	22.23	3.11	10.90	12.59	14.00

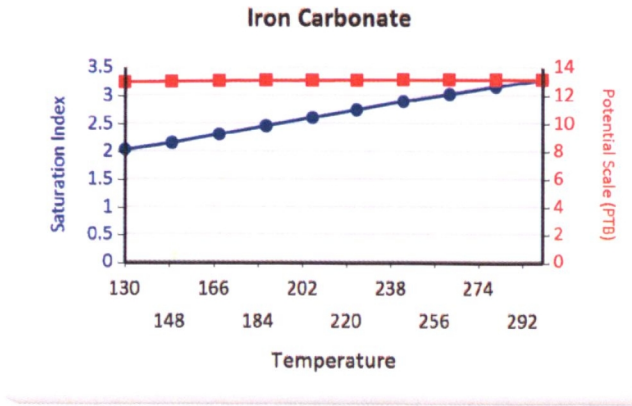
These scales have positive scaling potential under initial temperature and pressure: Calcium Carbonate Barium Sulfate Iron Carbonate Zinc Carbonate Fe Silicate

These scales have positive scaling potential under final temperature and pressure: Calcium Carbonate Barium Sulfate Iron Carbonate Zinc Carbonate Mg Silicate Ca Mg Silicate Fe Silicate









Multi-Chem Analytical Laboratory
1553 East Highway 40
Vernal, UT 84078

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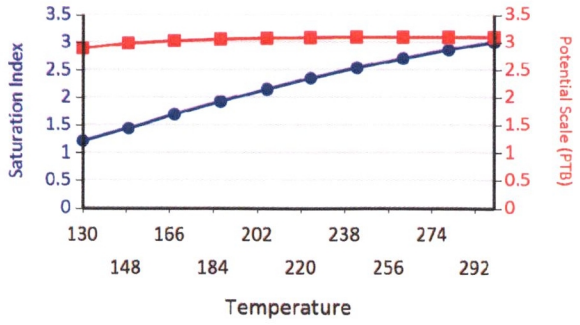
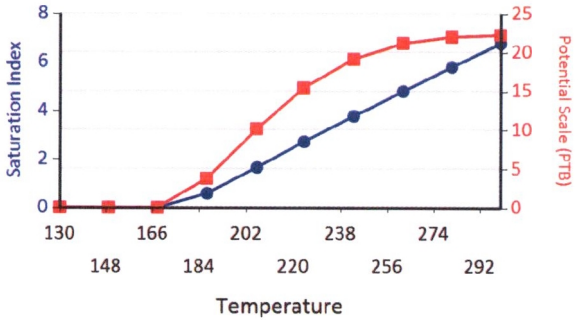
Water Analysis Report

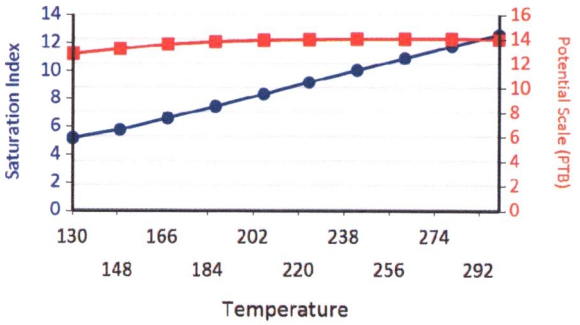
Zinc Carbonate



Mg Silicate



Fe Silicate



June 1, 2017

Gary Wang or Don Breffle
Underground Injection Control Enforcement
U.S. Environmental Protection Agency
Mail Code: 8ENF-UFO
US EPA Region 8
1595 Wyncoop Street
Denver, CO 80202-1129

RE: 5-year Mechanical Integrity Tests

Mr. Wang/ Mr. Breffle:

Please find enclosed 5-year Mechanical Integrity Tests for the following wells:

- Ute Tribal 04-01 UT 20736-04322
- Ute Tribal 08-06
- Ute Tribal 16-16
- Ute Tribal 18-14
- Ute Tribal 28-11
- Ute Tribal 29-02
- Ute Tribal 29-08A
- Ute Tribal 29-10
- Ute Tribal 29-11
- Ute Tribal 29-15
- Ute Tribal 30-16
- Ute Tribal 33-16D3

Best Regards,

Nicole Colby
Manager, Land & Regulatory Compliance

U2 Entered
Date 6/14/17
Initial

Mechanical Integrity Test
Tubing/Casing Annulus Pressure Test

U.S. Environmental Protection Agency
Underground Injection Control Program
1595 Wynkoop Street, Denver, CO 80202

EPA Witness: _____ Date: 5 / 1 / 17

Test conducted by: CHAD STEVENSON

Others present: _____

Well Name: 04-01 Type: ER SWD **Status: AC TA UC**

Field: ANTELOPE CREEK

Location: 04-01 **Sec:** ____ **T** ____ **N / S R** ____ **E / W County:** DUCHESNE **State:** UT

Operator: PETROGLYPH ENERGY

Last MIT: ____ / ____ / ____ **Maximum Allowable Pressure:** _____ **PSIG**

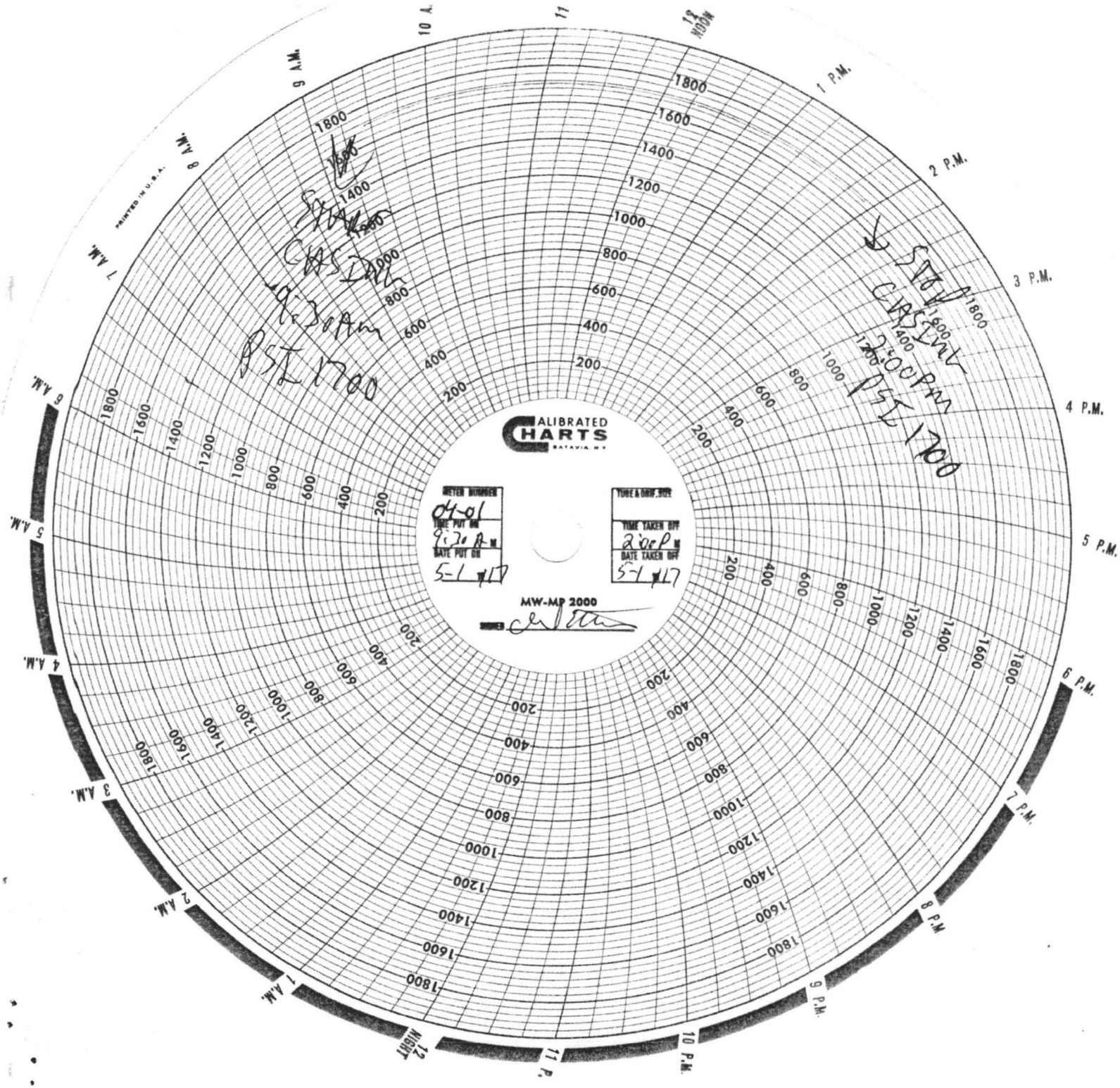
Regularly scheduled test? [X] Yes [ ] No
Initial test for permit? [ ] Yes [ ] No
Test after well rework? [ ] Yes [ ] No

Well injecting during test? If Yes, rate: 36 **bpd**

Pre-test annulus pressure: _____ **psig**

MIT DATA TABLE	Test #1	Test #2	Test #3
TUBING		**PRESSURE RECORD**	
Initial Pressure	1920 psig	psig	psig
End of test pressure	1920 psig	psig	psig
CASING / TUBING ANNULUS		**PRESSURE RECORD**	
0 minutes	1700 psig	psig	psig
5 minutes	1700 psig	psig	psig
10 minutes	1700 psig	psig	psig
15 minutes	1700 psig	psig	psig
20 minutes	1700 psig	psig	psig
25 minutes	1700 psig	psig	psig
30 minutes	1700 psig	psig	psig
4 1/2 Hours minutes	1700 psig	psig	psig
_____ minutes	psig	psig	psig
RESULT	[ ] Pass [ ] Fail	[ ] Pass [ ] Fail	[ ] Pass [ ] Fail

Does the annulus pressure build back up after the test ? If Yes, _____ **psig.**


CALIBRATED
CHARTS
BATAVIA, N.Y.
METER NUMBER
04-01
TIME PUT ON
9:30 A M
DATE PUT ON
5-4
TIME & DIFF. SCALE
TIME TAKEN OFF
2:00 P M
DATE TAKEN OFF
5-5
MW-MP 2000
PRINTED IN U.S.A.
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NOON
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11 P.M.

OMB No. 2040-0042 Approval Expires 11/30/2014

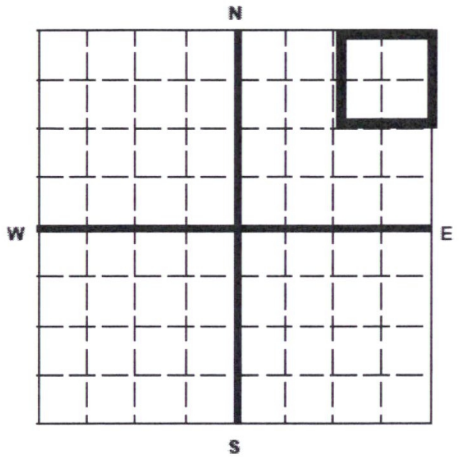
United States Environmental Protection Agency
Washington, DC 20460

ANNUAL DISPOSAL/INJECTION WELL MONITORING REPORT

Name and Address of Existing Permittee
Petroglyph Operating Company, Inc. 2258
P.O. Box 7608
Boise, Idaho 83709

Name and Address of Surface Owner
Ute Indian Tribe
P.O. Box 70
Ft. Duchesne, Utah, 84026

Locate Well and Outline Unit on Section Plat - 640 Acres



State	County	Permit Number
Utah	Duchesne	UT2736-04434 04322

Surface Location Description
___ 1/4 of ___ 1/4 of NE 1/4 of NE 1/4 of Section 4 Township 5S Range 3W

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface Location 1331 ft. frm (N/S) N Line of quarter section
and 1227 ft. from (E/W) E Line of quarter section.

U2 Entered
Date 2/29/16
Initial DJ

WELL ACTIVITY	TYPE OF PERMIT
[ ] Brine Disposal	[ ] Individual
[X] Enhanced Recovery	[X] Area
[ ] Hydrocarbon Storage	Number of Wells 111

Lease Name Ute Indian Tribe Well Number UTE TRIBAL 04-01

		INJECTION PRESSURE		TOTAL VOLUME INJECTED		TUBING – CASING ANNULUS PRESSURE (OPTIONAL MONITORING)	
MONTH	YEAR	AVERAGE PSIG	MAXIMUM PSIG	BBL	MCF	MINIMUM PSIG	MAXIMUM PSIG
January	15	1851	1876	1106		0	0
February	15	1919	1935	1093		0	0
March	15	1910	1944	1296		0	0
April	15	1903	1910	1168		0	0
May	15	1911	1924	1144		0	0
June	15	1914	1922	996		0	0
July	15	1919	1933	1168		0	0
August	15	1928	1941	1219		0	0
September	15	1893	1937	799		0	0
October	15	1911	1919	1158		0	0
November	15	1922	1941	1126		0	0
December	15	1915	1927	1126		0	0

Certification

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title *(Please type or print)*	Signature	Date Signed
Chad Stevenson, Water Facilities Supervisor		02/08/2016

EPA Form 7520-11 (Rev. 12-11)

Multi-Chem Analytical Laboratory
1553 East Highway 40
Vernal, UT 84078

multi-chem
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Units of Measurement: **Standard**

Water Analysis Report

Production Company:	**PETROGLYPH OPERATING CO INC - EBUS**	Sales Rep:	**James Patry**
Well Name:	**PETROGLYPH UTE TRIBAL 04-01,DUCHESN**	Lab Tech:	**Michele Pike**
Sample Point:	**Well Head**		
Sample Date:	**1/6/2016**		
Sample ID:	**WA-327696**		

Scaling potential predicted using ScaleSoftPitzer from Brine Chemistry Consortium (Rice University)

Sample Specifics

Test Date:	1/14/2016
System Temperature 1 (°F):	60
System Pressure 1 (psig):	2000
System Temperature 2 (°F):	180
System Pressure 2 (psig):	50
Calculated Density (g/ml):	1.0014
pH:	7.10
Calculated TDS (mg/L):	5902.76
CO2 in Gas (%):	
Dissolved CO_2 (mg/L)):	80.00
H_2S in Gas (%):	
H2S in Water (mg/L):	0.00
Tot. SuspendedSolids(mg/L):	
Corrosivity(LanglierSat.Indx)	0.00
Alkalinity:	

Analysis @ Properties in Sample Specifics

Cations	*mg/L*	*Anions*	*mg/L*
Sodium (Na):	1820.74	Chloride (Cl):	2500.00
Potassium (K):	4.92	Sulfate (SO_4):	390.00
Magnesium (Mg):	71.38	Bicarbonate (HCO_3):	916.00
Calcium (Ca):	164.28	Carbonate (CO_3):	
Strontium (Sr):	4.89	Acetic Acid (CH_3COO)	
Barium (Ba):	1.04	Propionic Acid (C_2H_5COO)	
Iron (Fe):	2.74	Butanoic Acid (C_3H_7COO)	
Zinc (Zn):	0.82	Isobutyric Acid ($(CH_3)_2CHCOO$)	
Lead (Pb):	0.13	Fluoride (F):	
Ammonia NH_3:		Bromine (Br):	
Manganese (Mn):	0.04	Silica (SiO_2):	25.78
Aluminum (Al):	0.08	Calcium Carbonate ($CaCO_3$):	
Lithium (Li):	0.94	Phosphates (PO_4):	4.89
Boron (B):	0.03	Oxygen (O_2):	
Silicon (Si):	12.05		

Notes:

(PTB = Pounds per Thousand Barrels)

		Calcium Carbonate		Barium Sulfate		Iron Sulfide		Iron Carbonate		Gypsum CaSO4·2H2O		Celestite SrSO4		Halite NaCl		Zinc Sulfide	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
180.00	50.00	1.05	85.63	0.80	0.52	0.00	0.00	1.40	1.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
167.00	267.00	0.88	73.37	0.83	0.53	0.00	0.00	1.21	1.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
153.00	483.00	0.77	65.10	0.86	0.53	0.00	0.00	1.08	1.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
140.00	700.00	0.66	56.89	0.90	0.54	0.00	0.00	0.94	1.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
127.00	917.00	0.57	48.85	0.95	0.55	0.00	0.00	0.81	1.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
113.00	1133.00	0.48	41.12	1.01	0.56	0.00	0.00	0.68	1.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	1350.00	0.39	33.80	1.09	0.57	0.00	0.00	0.55	1.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
87.00	1567.00	0.31	27.00	1.18	0.58	0.00	0.00	0.43	1.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
73.00	1783.00	0.24	20.78	1.29	0.59	0.00	0.00	0.30	0.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
60.00	2000.00	0.18	15.22	1.42	0.60	0.00	0.00	0.18	0.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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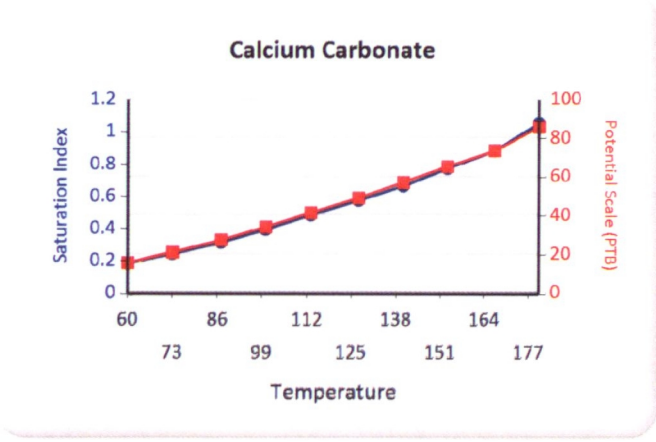
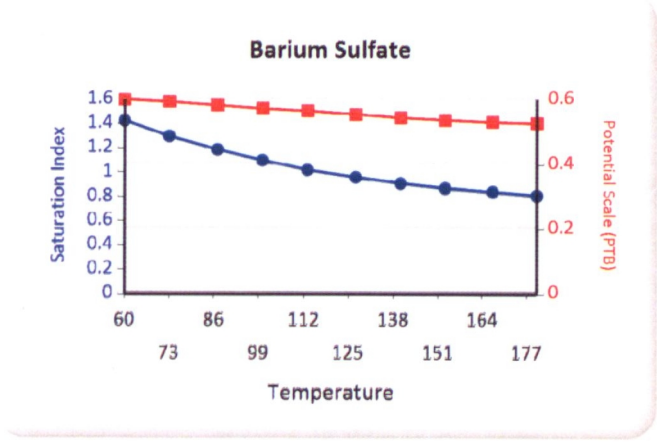
Water Analysis Report

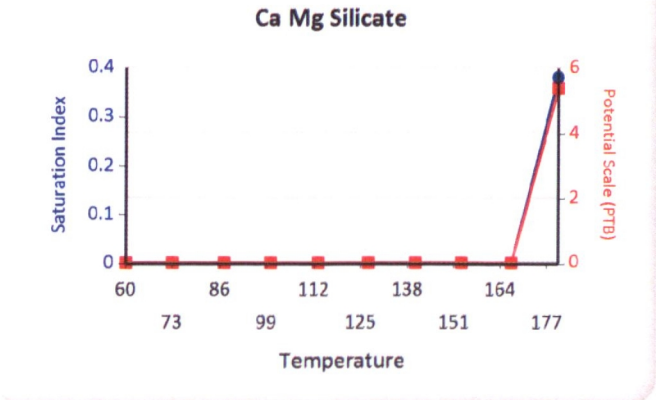
Temp (°F)	PSI	Hemihydrate CaSO4~0.5H2O SI	Hemihydrate CaSO4~0.5H2O PTB	Anhydrate CaSO4 SI	Anhydrate CaSO4 PTB	Calcium Fluoride SI	Calcium Fluoride PTB	Zinc Carbonate SI	Zinc Carbonate PTB	Lead Sulfide SI	Lead Sulfide PTB	Mg Silicate SI	Mg Silicate PTB	Ca Mg Silicate SI	Ca Mg Silicate PTB	Fe Silicate SI	Fe Silicate PTB
180.00	50.00	0.00	0.00	0.00	0.00	0.00	0.00	0.86	0.47	0.00	0.00	1.52	21.29	0.38	5.35	4.43	2.05
167.00	267.00	0.00	0.00	0.00	0.00	0.00	0.00	0.62	0.42	0.00	0.00	0.36	4.93	0.00	0.00	3.44	1.96
153.00	483.00	0.00	0.00	0.00	0.00	0.00	0.00	0.43	0.34	0.00	0.00	0.00	0.00	0.00	0.00	2.78	1.85
140.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.22	0.00	0.00	0.00	0.00	0.00	0.00	2.13	1.68
127.00	917.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	1.49	1.40
113.00	1133.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.87	0.98
100.00	1350.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.36
87.00	1567.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
73.00	1783.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
60.00	2000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

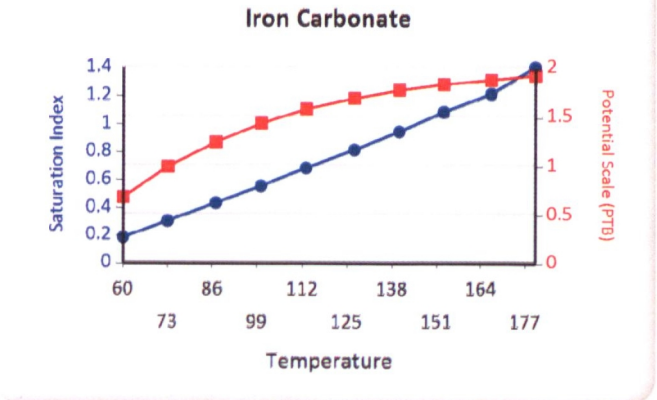
These scales have positive scaling potential under initial temperature and pressure: Calcium Carbonate Barium Sulfate Iron Carbonate Zinc Carbonate Mg Silicate Ca Mg Silicate Fe Silicate

These scales have positive scaling potential under final temperature and pressure: Calcium Carbonate Barium Sulfate Iron Carbonate









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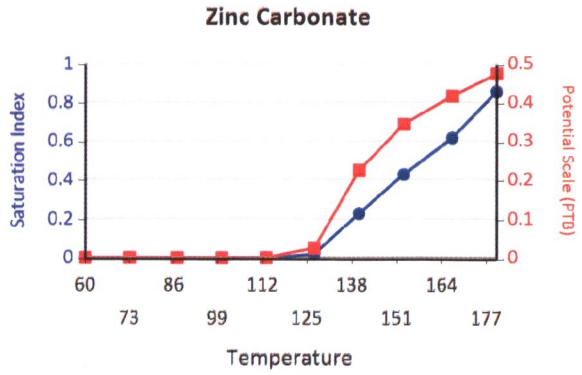
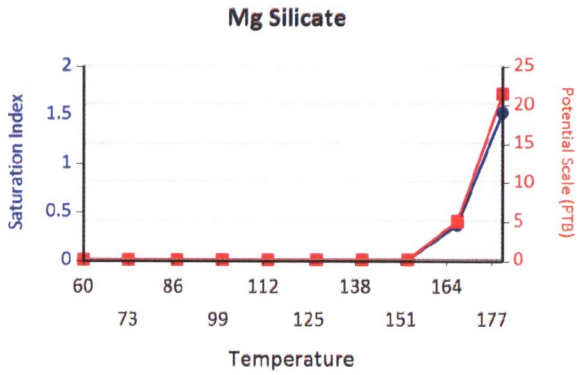
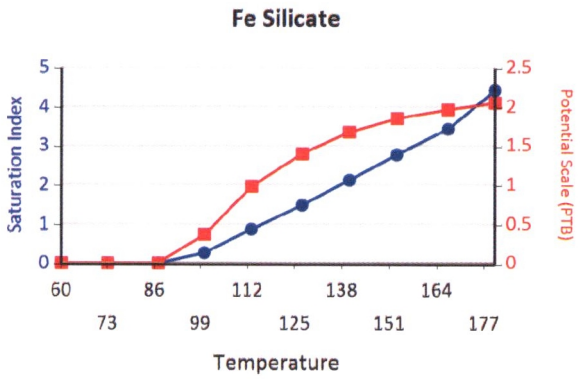






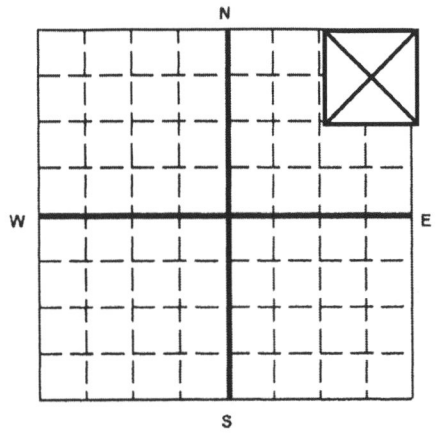
OMB No. 2040-0042 Approval Expires 12/31/2011

United States Environmental Protection Agency
Washington, DC 20460

ANNUAL DISPOSAL/INJECTION WELL MONITORING REPORT

Name and Address of Existing Permittee	Name and Address of Surface Owner
Petroglyph Operating Company, Inc. 2258 P.O. Box 7608 Boise, Idaho 83709	Ute Indian Tribe P.O. Box 70 Ft. Duchesne, Utah 84026

Locate Well and Outline Unit on Section Plat - 640 Acres



State	County	Permit Number
Utah	Duchesne	UT2736-04322

Surface Location Description

___ 1/4 of ___ 1/4 of NE 1/4 of NE 1/4 of Section 4 Township 5S Range 3W

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface Location 1331 ft. frm (N/S) N Line of quarter section and 1227 ft. from (E/W) E Line of quarter section.

WELL ACTIVITY
- [ ] Brine Disposal
- [X] Enhanced Recovery
- [ ] Hydrocarbon Storage

TYPE OF PERMIT
- [ ] Individual
- [X] Area

Number of Wells 111

Lease Name Ute Indian Tribe Well Number UTE TRIBAL 04-01

		INJECTION PRESSURE		TOTAL VOLUME INJECTED		TUBING -- CASING ANNULUS PRESSURE (OPTIONAL MONITORING)	
MONTH	YEAR	AVERAGE PSIG	MAXIMUM PSIG	BBL	MCF	MINIMUM PSIG	MAXIMUM PSIG
January	14	1881	1918	1339		0	0
February	14	1917	1927	1214		0	0
March	14	1905	1942	1360		0	0
April	14	1904	1914	1338		0	0
May	14	1924	1926	1320		0	0
June	14	1882	1915	1122		0	0
July	14	1831	1884	1040		0	0
August	14	1884	1908	~~1399~~	1362 inj mnthly	0	0
September	14	1877	1915	1412		0	0
October	14	1872	1906	1124		0	0
November	14	1899	1914	1287		0	0
December	14	1919	1929	1394		0	0

Certification

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title *(Please type or print)*	Signature	Date Signed
Chad Stevenson, Water Facilities Supervisor		2/10/2015

EPA Form 7520-11 (Rev. 12-08)

U2 Entered
Date 3/20/15
Initial ___

TAB	GREEN	BLUE	CBI
		2	

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Units of Measurement: **Standard**

Water Analysis Report

Production Company: **PETROGLYPH OPERATING CO INC - EBUS**
Well Name: **PETROGLYPH UTE TRIBAL 04-01,DUCHESN**
Sample Point: **WELLHEAD**
Sample Date: **1/7/2015**
Sample ID: **WA-298184**

Sales Rep: **James Patry**
Lab Tech: **Gary Winegar**

Scaling potential predicted using ScaleSoftPitzer from Brine Chemistry Consortium (Rice University)

Sample Specifics	
Test Date:	1/21/2015
System Temperature 1 (°F):	160
System Pressure 1 (psig):	1300
System Temperature 2 (°F):	80
System Pressure 2 (psig):	15
Calculated Density (g/ml):	0.9989
pH:	6.50
Calculated TDS (mg/L):	2558.15
CO2 in Gas (%):	
Dissolved CO_2 (mg/L)):	24.00
H_2S in Gas (%):	
H2S in Water (mg/L):	5.00

Analysis @ Properties in Sample Specifics			
Cations	*mg/L*	*Anions*	*mg/L*
Sodium (Na):	157.51	Chloride (Cl):	1000.00
Potassium (K):	1.84	Sulfate (SO_4):	419.00
Magnesium (Mg):	69.60	Bicarbonate (HCO_3):	732.00
Calcium (Ca):	140.37	Carbonate (CO_3):	
Strontium (Sr):	4.47	Acetic Acid (CH_3COO)	
Barium (Ba):	0.37	Propionic Acid (C_2H_5COO)	
Iron (Fe):	4.29	Butanoic Acid (C_3H_7COO)	
Zinc (Zn):	0.83	Isobutyric Acid ($(CH_3)_2CHCOO$)	
Lead (Pb):	0.00	Fluoride (F):	
Ammonia NH_3:		Bromine (Br):	
Manganese (Mn):	0.05	Silica (SiO_2):	27.82

Notes:
B=.87 Al=0 Li=.24

(PTB = Pounds per Thousand Barrels)

		Calcium Carbonate		Barium Sulfate		Iron Sulfide		Iron Carbonate		Gypsum $CaSO_4 \cdot 2H_2O$		Celestite $SrSO_4$		Halite NaCl		Zinc Sulfide	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
80.00	14.00	0.00	0.00	1.25	0.21	1.27	2.13	0.23	1.25	0.00	0.00	0.00	0.00	0.00	0.00	8.80	0.43
88.00	157.00	0.00	0.00	1.16	0.21	1.12	2.04	0.20	1.15	0.00	0.00	0.00	0.00	0.00	0.00	8.54	0.43
97.00	300.00	0.00	0.00	1.09	0.20	1.11	2.03	0.27	1.42	0.00	0.00	0.00	0.00	0.00	0.00	8.43	0.43
106.00	443.00	0.00	0.00	1.02	0.20	1.11	2.03	0.34	1.66	0.00	0.00	0.00	0.00	0.00	0.00	8.33	0.43
115.00	585.00	0.00	0.00	0.95	0.20	1.12	2.04	0.40	1.86	0.00	0.00	0.00	0.00	0.00	0.00	8.23	0.43
124.00	728.00	0.01	1.20	0.90	0.19	1.13	2.05	0.47	2.04	0.00	0.00	0.00	0.00	0.00	0.00	8.15	0.43
133.00	871.00	0.06	6.01	0.85	0.19	1.15	2.06	0.54	2.19	0.00	0.00	0.00	0.00	0.00	0.00	8.07	0.43
142.00	1014.00	0.10	10.95	0.80	0.19	1.18	2.08	0.60	2.32	0.00	0.00	0.00	0.00	0.00	0.00	8.00	0.43
151.00	1157.00	0.15	15.97	0.76	0.18	1.21	2.09	0.67	2.44	0.00	0.00	0.00	0.00	0.00	0.00	7.93	0.43
160.00	1300.00	0.20	21.05	0.73	0.18	1.24	2.11	0.74	2.53	0.00	0.00	0.00	0.00	0.00	0.00	7.88	0.43

		Hemihydrate $CaSO_4 \sim 0.5H_2O$		Anhydrate $CaSO_4$		Calcium Fluoride		Zinc Carbonate		Lead Sulfide		Mg Silicate		Ca Mg Silicate		Fe Silicate	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
80.00	14.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
88.00	157.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
97.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
106.00	443.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
115.00	585.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
124.00	728.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
133.00	871.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
142.00	1014.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
151.00	1157.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
160.00	1300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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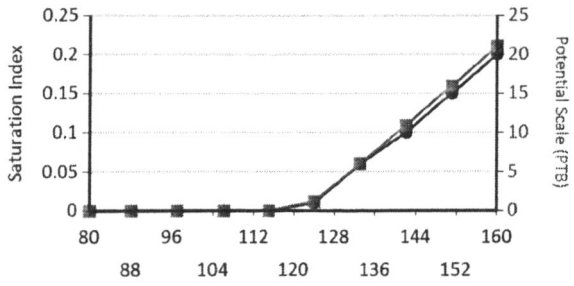
Water Analysis Report

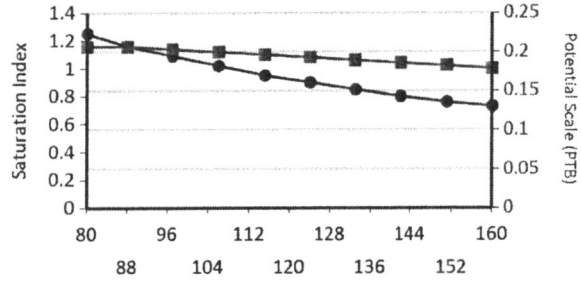
These scales have positive scaling potential under initial temperature and pressure: Barium Sulfate Iron Sulfide Iron Carbonate Zinc Sulfide

These scales have positive scaling potential under final temperature and pressure: Calcium Carbonate Barium Sulfate Iron Sulfide Iron Carbonate Zinc Sulfide

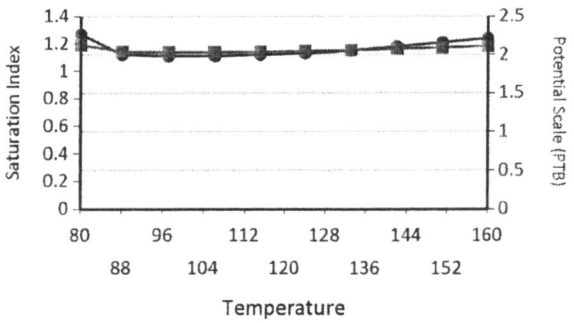
Calcium Carbonate



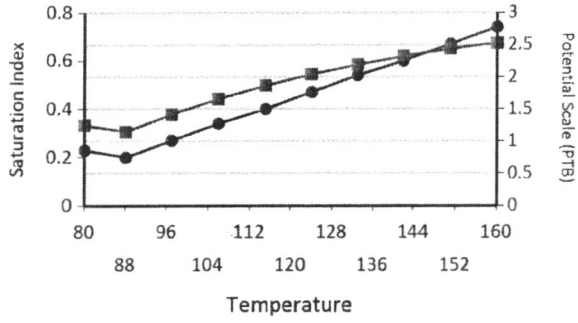
Barium Sulfate



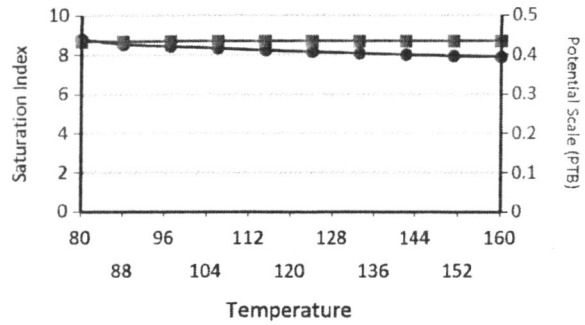
Iron Sulfide



Iron Carbonate



Zinc Sulfide



OMB No. 2040-0042 Approval Expires 12/31/2011

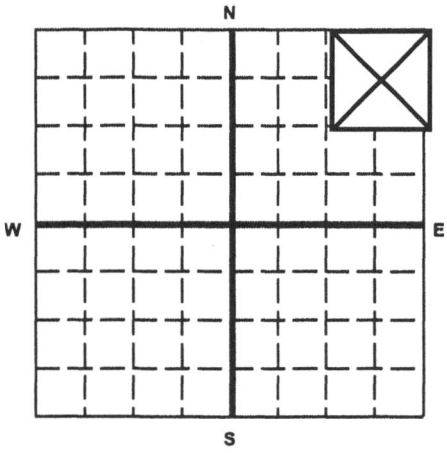
United States Environmental Protection Agency
Washington, DC 20460

ANNUAL DISPOSAL/INJECTION WELL MONITORING REPORT

Name and Address of Existing Permittee
Petroglyph Operating Company, Inc. 2258
P.O. Box 7608
Boise, Idaho 83709

Name and Address of Surface Owner
Ute Indian Tribe
P.O. Box 70
Ft. Duchesne, Utah 84026

Locate Well and Outline Unit on Section Plat - 640 Acres



State	County	Permit Number
Utah	Duchesne	UT2736-04322

Surface Location Description
____ 1/4 of ____ 1/4 of NE 1/4 of NE 1/4 of Section 4 Township 5S Range 3W

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface Location 1331 ft. frm (N/S) N Line of quarter section
and 1227 ft. from (E/W) E Line of quarter section.

WELL ACTIVITY
- ☐ Brine Disposal
- ☒ Enhanced Recovery
- ☐ Hydrocarbon Storage

TYPE OF PERMIT
- ☐ Individual
- ☒ Area

Number of Wells 111

Lease Name Ute Indian Tribe Well Number UTE TRIBAL 04-01

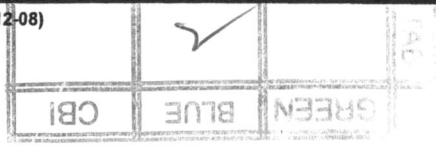
		INJECTION PRESSURE		TOTAL VOLUME INJECTED		TUBING -- CASING ANNULUS PRESSURE (OPTIONAL MONITORING)	
MONTH	YEAR	AVERAGE PSIG	MAXIMUM PSIG	BBL	MCF	MINIMUM PSIG	MAXIMUM PSIG
January	13	1851	1918	1327		0	0
February	13	1883	1918	1540		0	0
March	13	1752	1800	787		0	0
April	13	1888	1913	1609		0	0
May	13	1909	1932	1546		0	0
June	13	1867	1864	1152		0	0
July	13	1873	1921	1178		0	0
August	13	1873	1904	1341		0	0
September	13	1897	1934	1378		0	0
October	13	1908	1931	1546		0	0
November	13	1915	1930	1410		0	0
December	13	1858	1908	1191		0	0

Certification

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title *(Please type or print)*	Signature	Date Signed
Chad Stevenson, Water Facilities Supervisor		2/11/2014

EPA Form 7520-11 (Rev. 12-08)



U2 Entered
Date 3/17/14
Initial

Multi-Chem Analytical Laboratory
1553 East Highway 40
Vernal, UT 84078

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Units of Measurement: **Standard**

Water Analysis Report

Production Company: **PETROGLYPH ENERGY INC**
Well Name: **UTE TRIBAL 04-01 INJ**
Sample Point: **Wellhead**
Sample Date: **1/8/2014**
Sample ID: **WA-263008**

Sales Rep: **James Patry**
Lab Tech: **Gary Winegar**

Scaling potential predicted using ScaleSoftPitzer from Brine Chemistry Consortium (Rice University)

Sample Specifics	
Test Date:	1/15/2014
System Temperature 1 (°F):	180
System Pressure 1 (psig):	1300
System Temperature 2 (°F):	60
System Pressure 2 (psig):	15
Calculated Density (g/ml):	1.006
pH:	8.40
Calculated TDS (mg/L):	12292.01
CO2 in Gas (%):	
Dissolved CO_2 (mg/L)):	0.00
H_2S in Gas (%):	
H2S in Water (mg/L):	0.00

Analysis @ Properties in Sample Specifics			
Cations	*mg/L*	*Anions*	*mg/L*
Sodium (Na):	4431.75	Chloride (Cl):	6000.00
Potassium (K):	58.00	Sulfate (SO_4):	0.00
Magnesium (Mg):	10.00	Bicarbonate (HCO_3):	1708.00
Calcium (Ca):	26.00	Carbonate (CO_3):	
Strontium (Sr):	5.00	Acetic Acid (CH_3COO)	
Barium (Ba):	15.00	Propionic Acid (C_2H_5COO)	
Iron (Fe):	14.00	Butanoic Acid (C_3H_7COO)	
Zinc (Zn):	0.35	Isobutyric Acid ($(CH_3)_2CHCOO$)	
Lead (Pb):	0.07	Fluoride (F):	
Ammonia NH_3:		Bromine (Br):	
Manganese (Mn):	0.30	Silica (SiO_2):	23.54

Notes:
B=5.5 Al=.03 Li=1.4

(PTB = Pounds per Thousand Barrels)

		Calcium Carbonate		Barium Sulfate		Iron Sulfide		Iron Carbonate		Gypsum $CaSO_4 \cdot 2H_2O$		Celestite $SrSO_4$		Halite NaCl		Zinc Sulfide	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
60.00	14.00	1.14	19.74	0.00	0.00	0.00	0.00	2.64	10.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
73.00	157.00	1.14	19.75	0.00	0.00	0.00	0.00	2.70	10.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
86.00	300.00	1.16	19.90	0.00	0.00	0.00	0.00	2.77	10.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	443.00	1.19	20.08	0.00	0.00	0.00	0.00	2.84	10.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
113.00	585.00	1.22	20.28	0.00	0.00	0.00	0.00	2.91	10.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
126.00	728.00	1.25	20.48	0.00	0.00	0.00	0.00	2.97	10.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
140.00	871.00	1.28	20.69	0.00	0.00	0.00	0.00	3.04	10.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
153.00	1014.00	1.33	20.90	0.00	0.00	0.00	0.00	3.10	10.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
166.00	1157.00	1.37	21.10	0.00	0.00	0.00	0.00	3.16	10.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
180.00	1300.00	1.42	21.30	0.00	0.00	0.00	0.00	3.22	10.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Multi-Chem Analytical Laboratory
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Vernal, UT 84078

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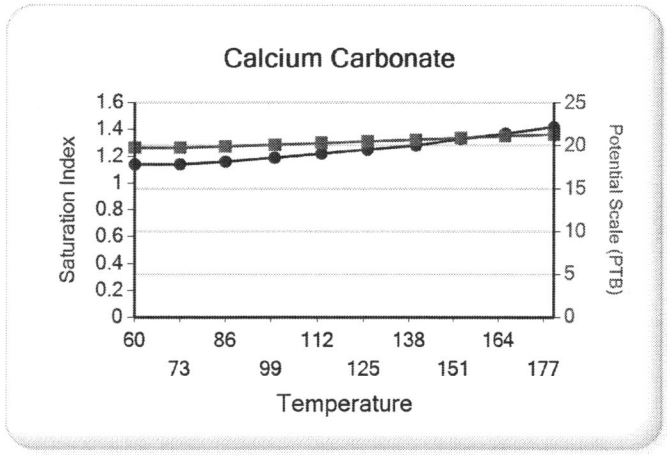
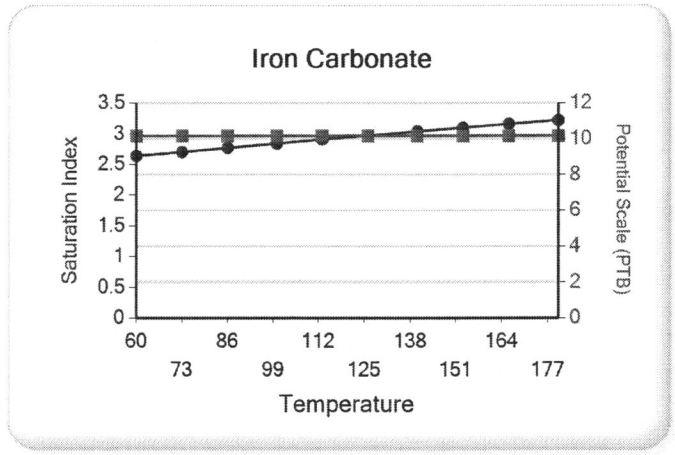
Water Analysis Report

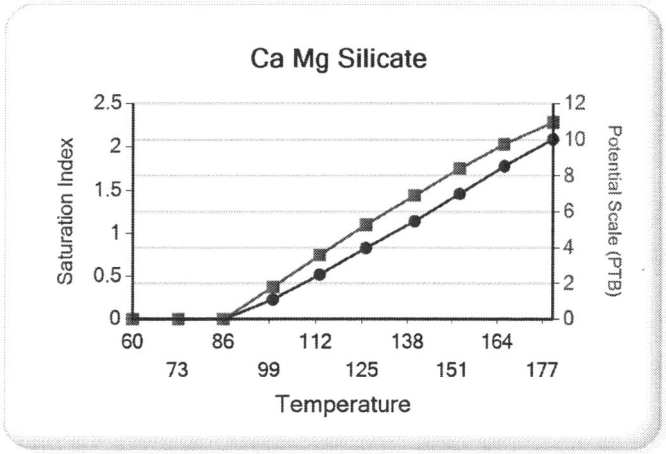
		Hemihydrate CaSO4~0.5H2O		Anhydrate CaSO4		Calcium Fluoride		Zinc Carbonate		Lead Sulfide		Mg Silicate		Ca Mg Silicate		Fe Silicate	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
60.00	14.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.05	0.00	0.00	0.00	0.00	0.00	0.00	8.97	10.85
73.00	157.00	0.00	0.00	0.00	0.00	0.00	0.00	0.31	0.12	0.00	0.00	0.00	0.00	0.00	0.00	9.17	10.85
86.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.16	0.00	0.00	0.46	2.67	0.00	0.00	9.45	10.86
100.00	443.00	0.00	0.00	0.00	0.00	0.00	0.00	0.68	0.19	0.00	0.00	1.01	5.29	0.23	1.80	9.76	10.87
113.00	585.00	0.00	0.00	0.00	0.00	0.00	0.00	0.85	0.20	0.00	0.00	1.56	7.75	0.52	3.58	10.08	10.87
126.00	728.00	0.00	0.00	0.00	0.00	0.00	0.00	1.01	0.21	0.00	0.00	2.13	10.01	0.83	5.28	10.43	10.88
140.00	871.00	0.00	0.00	0.00	0.00	0.00	0.00	1.16	0.22	0.00	0.00	2.69	12.06	1.14	6.90	10.79	10.88
153.00	1014.00	0.00	0.00	0.00	0.00	0.00	0.00	1.29	0.22	0.00	0.00	3.26	13.87	1.46	8.41	11.16	10.88
166.00	1157.00	0.00	0.00	0.00	0.00	0.00	0.00	1.42	0.23	0.00	0.00	3.82	15.43	1.78	9.76	11.53	10.88
180.00	1300.00	0.00	0.00	0.00	0.00	0.00	0.00	1.54	0.23	0.00	0.00	4.38	16.70	2.09	10.96	11.91	10.89

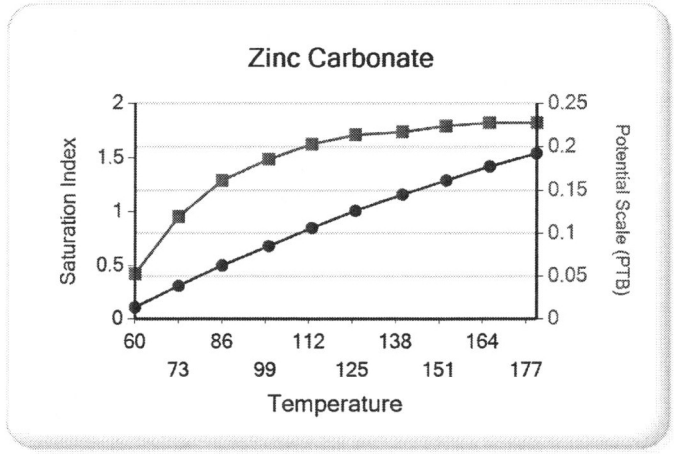
These scales have positive scaling potential under initial temperature and pressure: Calcium Carbonate Iron Carbonate Zinc Carbonate Fe Silicate

These scales have positive scaling potential under final temperature and pressure: Calcium Carbonate Iron Carbonate Zinc Carbonate Mg Silicate Ca Mg Silicate Fe Silicate









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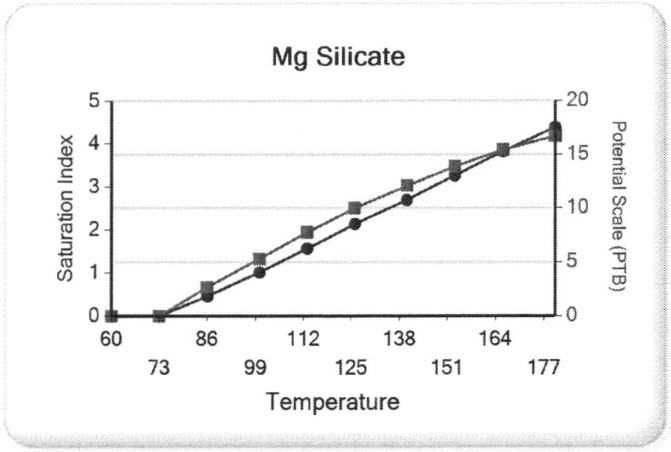
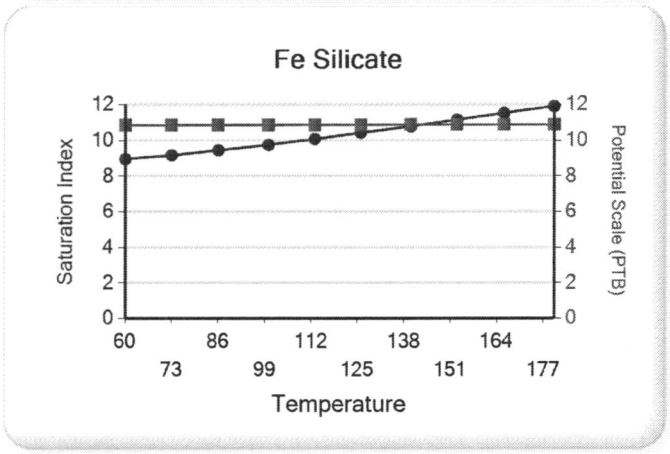
Water Analysis Report





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8
999 18TH STREET - SUITE 300
DENVER, CO 80202-2466

SEP 10 2001

Ref: 8P-W-GW

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Micheal Safford
Operations Coordinator
Petroglyph Operating Company, Inc.
P.O. Box 607
Roosevelt, UT 84066

RE: **UNDERGROUND INJECTION CONTROL (UIC)**
APPROVAL TO INCREASE MAXIMUM
SURFACE INJECTION PRESSURE
EPA Area Permit No. UT2736-00000
Ute Tribal No. 04-01
EPA Well Authority No. UT04322
Antelope Creek Waterflood
Duchesne County, Utah

Dear Mr. Safford:

The Environmental Protection Agency (EPA) Antelope Creek Final Area Permit UT2736-00000 (Effective July 12, 1994) Part II, Section C. 5. (b), permits the "Director" to authorize, by letter, an increase in the maximum surface injection pressure (MIP) for the Ute Tribal No. 04-01, following receipt and approval of a valid step-rate test (SRT).

On August 20, 2001, Petroglyph Energy, Inc. (Petroglyph) submitted an SRT to the EPA, dated August 8, 2001. The SRT was received by the EPA on August 20, 2001. The SRT was reviewed and approved by the EPA on August 27, 2001. The SRT shows the fracture gradient (FG) for the Green River Formation injection interval to be 0.826 psi/ft.

As of the date of this letter, the EPA authorizes an increase in the maximum surface injection pressure (MSIP) from 1915 psig, as modified by UIC Minor Permit Modification dated June 19, 1996, to 1975 psig. The following modified injection pressure will provide for higher injectivity capacity which will improve the waterflood efficiency without endangering any underground sources of drinking water (USDWs):

FG = 0.826 psi/ft
D = 5082 feet: top of perforations
SG = Specific gravity of injectate: 1.005
0.433 = Density of injectate fluid
MIP = [(0.826) - (.433)(1.005)] 5082

MSIP = 1975 psig

Please send all compliance correspondence relative to this well to the **ATTENTION: Nathan Wiser, at the letterhead address, citing Mail Code: 8ENF-T very prominently.** You may call Mr. Wiser at 303.312.6211.

All other provisions and conditions of the Permit remain as originally issued July 12, 1994 and Revised April 30, 1998.

Sincerely,

Kerrigan G. Clough
Assistant Regional Administrator
Office of Partnerships and
Regulatory Assistance

cc: Mr. D. Floyd Wopsock, Chairman
Uintah & Ouray Business Committee
Ute Indian Tribe

Ms. Elaine Willie, Environmental Coordinator
Ute Indian Tribe

Norman Cambridge
BIA - Uintah & Ouray Agency

Mr. Jerry Kenczka
BLM - Vernal District Office

Mr. Gilbert Hunt
State of Utah Natural Resources
Division of Oil, Gas & Mining

Mr. Nathan Wiser
8ENF-T

Step Rate Test (SRT) Analysis

Date: 09/05/01

Operator: Petroglyph Energy, Inc.
Well: Ute Tribal 04-01
Permit #: UT2736-04322

Enter the following data :

Specific Gravity (SG) of injectate	1.005	g/cc
Depth to top perforation(D)	5082	feet
Depth to Top of permitted injection zone		feet
Estimated Formation Parting Pressure (Pfp) from SRT chart	1989	psi
Instantaneous Shut In Pressure (ISIP) from SRT	1980	psi
Bottom Hole Parting Pressure (from downhole pressure recorder)		psi

1989

Part One - Calculation of Fracture Gradient (F G)

Calculated Fracture Gradient = **0.824** psi/ft.

FG = Pbhp / Depth (D) of top perforation
(Uses downhole recorded bottom hole parting pressure when available)

0.825

Calculated Bottom Hole Parting Pressure = 4192 psi

*Calculated Pbhp = Formation Fracture Pressure + (0.433 * SG * D)*
(Use lesser of ISIP or Pfp) *value used=* *1980*

4192

Part Two - Calculation of Maximum Surface Injection Pressure (M S I P)

Maximum Surface Injection Pressure = **1975** psig

(rounded down to nearest 5 psig)

*MSIP = [FG - (0.433 * SG)] * Depth to top of permitted injection zone (or top perforation)*

5082

1976

Sent under
UT20736-04322
MA 1st Class
Request

U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

OFFICIAL USE

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$

Postmark Here

Sent To: Mr. Micheal Safford
Operation Coordinator
Petroglyph Operating Co., Inc.
Street, Apt. No., or PO Box No.: P.O. Box 607
City, State, ZIP+4: Roosevelt, UT 84066

7001 0320 0005 9387 1970

PS Form 3800, January 2001 — See Reverse for Instructions

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to: 9/10/01 CW 4175C

Mr. Micheal Safford
Operation Coordinator
Petroglyph Operating Co., Inc.
P.O. Box 607
Roosevelt, UT 84066

SEP 10 2001

SEP 17 2001

COMPLETE THIS SECTION ON DELIVERY

A. Received by *(Please Print Clearly)* B. Date of Delivery 9-17-01

C. Signature
X [signature] ☐ Agent ☒ Addressee

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

UTE TRIBAL NO. 04-01
(UT2736-04322)

SEP 17 2001

3. Service Type
XX Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2. Article Number *(Copy from service label)* 7001 0320 0005 9387 1970

PS Form 3811, July 1999 — Domestic Return Receipt — 102595-00-M-0952

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION VIII
999 18th STREET - SUITE 500
DENVER, COLORADO 80202-2466

Ref: 8P2-W-GW

JUN 27 1996

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Ms. Angela R. Ely
Administrative of Operations Manager
Petroglyph Operating Company, Inc.
P. O. Box 1839
Hutchinson, KS 67504-1839

RE: UNDERGROUND INJECTION CONTROL (UIC)
Authorization to Inject
Ute Tribal #04-01
Antelope Creek Waterflood
EPA Area Permit No. UT2736-00000
Duchesne County, Utah

Dear Ms. Ely:

Thank you for the recently submitted information pertaining to the above-referenced area permit. The Well Rework Record, injection zone fluid pore pressure survey, and the successfully run mechanical integrity test on the Ute Tribal #04-01 (UT2736-04322) have been reviewed and approved. Petroglyph has complied with all of the pertinent permit conditions (Part II, Section C. 2.) for the Antelope Creek Waterflood area permit.

Pleased be advised that administrative approval has been granted for water injection into the above referenced well. Please also be aware of the monitoring, recordkeeping and reporting requirements described in Part II, Section D of the permit and that the current maximum surface injection pressure (Pmax) is limited to 1915 psig, as modified by UIC Permit Minor Modification dated June 19, 1996.

Please direct all correspondence to the attention of Chuck Williams at the above letterhead **(MAIL CODE 8P2-W-GW)** or contact Mr. Williams at (303) 312-6625. Thank you for your continued cooperation.

Sincerely,

D. Edwin Hogle
Acting Director, Groundwater Program
Office of Pollution Prevention
State and Tribal Assistance

CONCURRENCE COPY

JUN 27 1996

Ref: 8P2-W-GW

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Ms. Angela R. Ely
Administrative of Operations Manager
Petroglyph Operating Company, Inc.
P. O. Box 1839
Hutchinson, KS 67504-1839

RE: UNDERGROUND INJECTION CONTROL (UIC)
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Antelope Creek Waterflood
EPA Area Permit No. UT2736-00000
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Sincerely,

D. Edwin Hogle
Acting Director, Groundwater Program
Office of Pollution Prevention
State and Tribal Assistance

FCD: June 26, 1996, Chuck W,

CEW 8P2-W-GW 6/26/96 8P2-W-GW 6/26/96 6/27/96

P 380 388 208

US Postal Service
Receipt for Certified Mail
No Insurance Coverage Provided. cew 2881C
Do not use for International Mail *(See reverse)*

Ms. Angela R. Ely
Administrative Operations Mgr.
Petroglyph Operating Company,
P. O. BOX 1839
Hutchinson, Kansas 67504-1839

Postage	$
Certified Fee	JUN 27 1996
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	$

PS Form **3800**, April 1995

Authorization to Inject
Ute Tribal #04-01
Antelope Creek Waterflood
EPA Area Permit #UT2736-00000
Duchesne County, Utah

Fold at line over top of envelope to

Sean under
UT 20736-04322
Authorization to
Inject - Final

Is your RETURN ADDRESS completed on the reverse side?

SENDER: cew 06/27/96 2881C

- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write *"Return Receipt Requested"* on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):
1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to: UT2736-00000

Ms. Angela R. Ely
Administrative Operations Manager
Petroglyph Operating Company, Inc.
P. O. BOX 1839
Hutchinson, Kansas 67504-1839

4a. Article Number
P 380 388 208

4b. Service Type
☐ Registered ☒ Certified
☐ Express Mail ☐ Insured
☐ Return Receipt for Merchandise ☐ COD

7. Date of Delivery
JUL 01 1996

5. Received By: *(Print Name)* J. Salomayor

8. Addressee's Address *(Only if requested and fee is paid)*

6. Signature: *(Addressee or Agent)* X

cjo

PS Form **3811**, December 1994 NL Domestic Return Receipt

Thank you for using Return Receipt Service.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION VIII
999 18th STREET - SUITE 500
DENVER, COLORADO 80202-2466

JUN 19 1996

Ref: 8P2-W-GW

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Ms. Angela R. Ely
Administrative Operations Manager
Petroglyph Operating Company, Inc.
6209 North Highway 61
Hutchinson, Kansas 67502

RE: **UIC Permit Minor Modification**
Conversion of Additional Wells (5)
Antelope Creek Waterflood
EPA Area Permit UT2736-00000
Duchesne County, Utah

Dear Ms. Ely:

Your letter of April 3, 1996, requesting that the following five (5) wells be converted to Class II enhanced oil recovery wells and added to the Antelope Creek Waterflood, as authorized under EPA Area Permit UT2736-00000, is hereby granted.

NAME	LOCATION	EPA PERMIT NO.
Ute Tribal 04-01	NE NE Section 4	UT2736-04322
Ute Tribal 05-08	SE NE Section 5	UT2736-04324
Ute Tribal 29-08A	SE NE Section 29	UT2736-04325
Ute Tribal 05-16	SE SE Section 5	UT2736-04327
Ute Tribal 04-05	SW NW Section 4	UT2736-04328

These additional wells are within the boundary of the existing area permit for the Antelope Creek Waterflood (UT2736-00000), and this addition is made by minor permit modification according to the terms and conditions of that permit. Unless specifically mentioned in the Minor Permit Modification, all terms and conditions of the original permit will apply to the construction, operation, monitoring, and plugging and abandonment of these additional injection wells. The proposed well location, well schematic, conversion procedures, and revised plugging and abandonment plans and schematics submitted by your office have been reviewed and approved as follows:

(1) The **construction** of these wells have been reviewed and found satisfactory as submitted, therefore, no corrective action is required.

(2) **Maximum injection pressure (Pmax)** for these wells are a follows:

Pmax = [Fg - 0.433 (Sg)] d

Where: Pmax = Maximum surface injection pressure at wellhead
d = 4283' shallowest perforations of the five (5) wells
Sg = Specific gravity of injected water

Pmax = [0.88 - .433 (1.00)] 4283

Pmax = 1915 psig

Until such time as the permittee demonstrates that a fracture pressure other than 1915 psig applies to the disposal zones, of the newly converted wells, the maximum allowable wellhead injection pressure **(Pmax) for the these wells will be 1915 psig.**

(3) The **plugging and abandonment plans and schematics**, submitted by your office, have been reviewed and approved subject to the following changes:

(a) Prior to, or in conjunction with the emplacement of the surface plug (plug #3 in the primary plan of the permit) in the production casing, the production casing is to perforated 2', w/4 spf, at a point 50' below the surface casing shoe and cement squeeze the perfs to 50' above the shoe. Pull out of hole (POOH) leaving a 100' cement plug inside the production casing.

(b) The production/surface casing annulus will also be cemented from surface to a depth of 50'. A similar plug (50' to surface) will be left inside of the production casing (plug #4 in the primary plan of the permit).

Prior to commencing injection into the above five (5) wells, permittee must fulfill permit condition Part II, C. 2. and have received **written authorization** to inject by the EPA Director. In summary, these requirements for your newly permitted injection wells are:

(1) All conversion is complete and the permittee has submitted a completed **Well Rework Record (EPA Form 7520-12)**.

(2) The **pore pressure has been determined.**

(3) The well has successfully completed and passed a **mechanical integrity test (MIT)**, guidance enclosed.

All other provisions and conditions of the permit remain as originally issued.

If you have any questions, please contact Mr. Chuck Williams at the above letterhead address, citing **MAIL CODE 8P2-W-GW** or telephone Mr. Williams at (303) 312-6625. Thank you for your continued cooperation.

Sincerely,

Kerrigan G. Clough
Assistant Regional Administrator
Office of Pollution Prevention,
State and Tribal Assistance

Enclosures: Schematics - Conversion
MIT Guidance and EPA Forms
Well Rework Record EPA Form 7520-12

cc w/Enclosures: Mr. Ferron Secakuku
Energy & Mineral Resource Dep't.
Ute Indian Tribe

Mr. Luke Duncan, Chairman
Uintah & Ouray Business Committee
Northern Ute Tribe

Mr. Norman Cambridge
Uintah & Ouray Agency
BIA

Mr. Gil Hunt
State of Utah Natural Resources
Division of Oil, Gas, and Mining

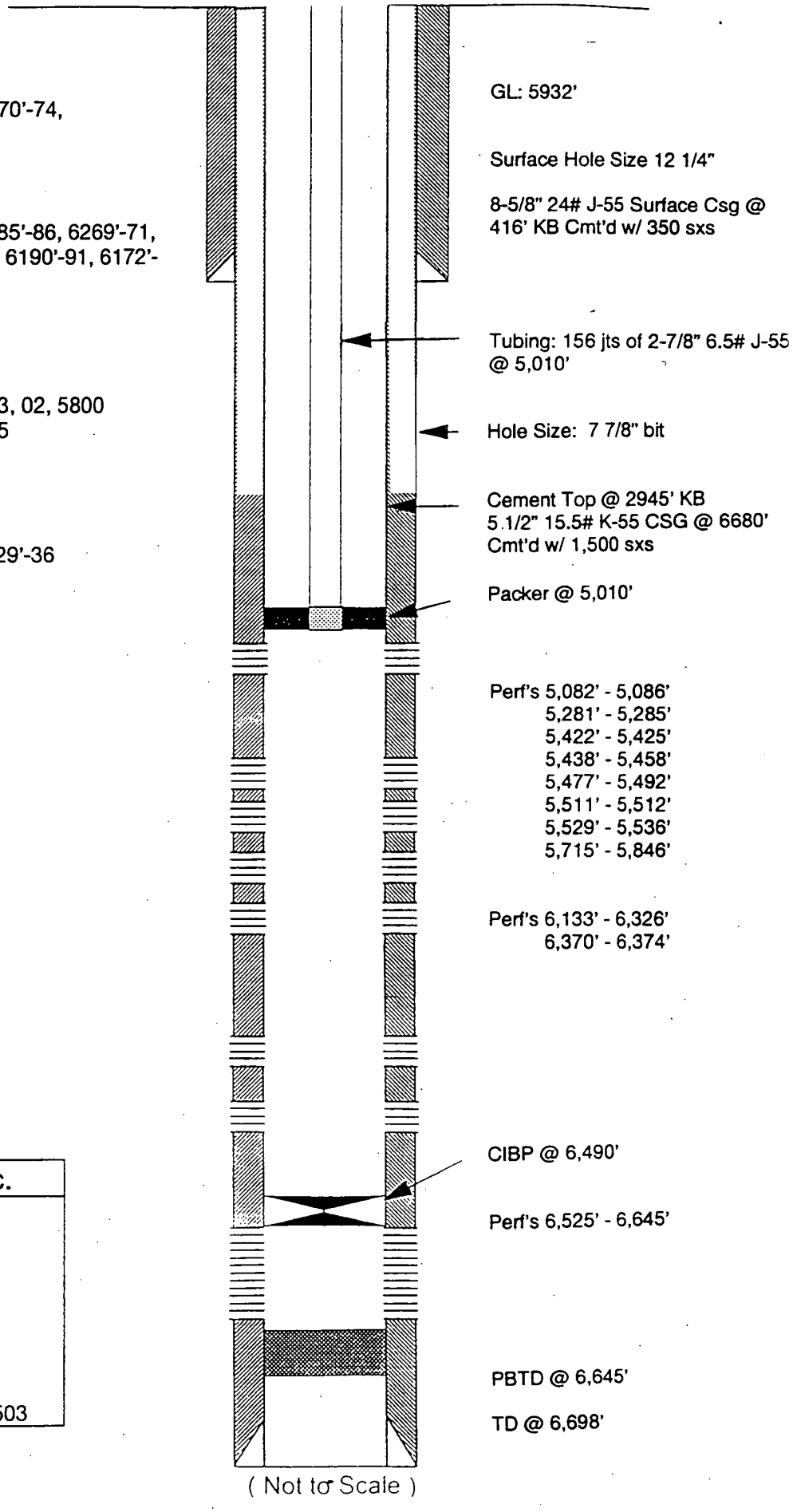
Mr. Jerry Kenczka
BLM - Vernal District Office

Ute Tribal #04-01
Wellbore Diagram
After Conversion

Well History:

5/30/83	Spud Well "Coors"
6/24/83	Perf'd 6645'-35, 6525'-30, 6370'-74, Brk Dwn 2% KCl water Frac'd 76,500# sand ISIP 2,500 psi
6/30/83	Perf'd 6325'-26, 6311'-12, 6285'-86, 6269'-71, 6253'-54, 6248'-49, 6229'-31, 6190'-91, 6172'-74, 6160'-67, 6133'-40 Brk Dwn 7½% HCl Frac'd 90,000# sand ISIP 2,500 psi
9/8/83	Perf'd 5846, 43, 40, 36, 04, 03, 02, 5800 Perf'd 5743, 33, 29, 25, 21, 15 Brk Dwn 7½% Acid Frac'd 100,716# sand ISIP 2,700 psi
11/18/83	Perf'd 5477'-92, 5111'-15, 5529'-36 Frac'd 36,000# sand ISIP 2,000 psi
8/22/84	Perf'd 5082'-86, 5281'-85 Frac'd 100,000# sand
7/26/90	Pump Changes
2/7/92	Well Shut In
11/27/92	Acid job Put well back on production

Tubing Detail: 2' psp Packer, 156 jts



Petroglyph Operating Co., Inc.

Ute Tribal 04-01

(1331' FNL & 1277' FEL)

NE NE Section 24-T5S-R3W
Antelope Creek Field
Duchesne Co, Utah
API #43-013 30762: Lease #14-20-H62-3503

Ute Tribal #05-08
Wellbore Diagram
After Conversion

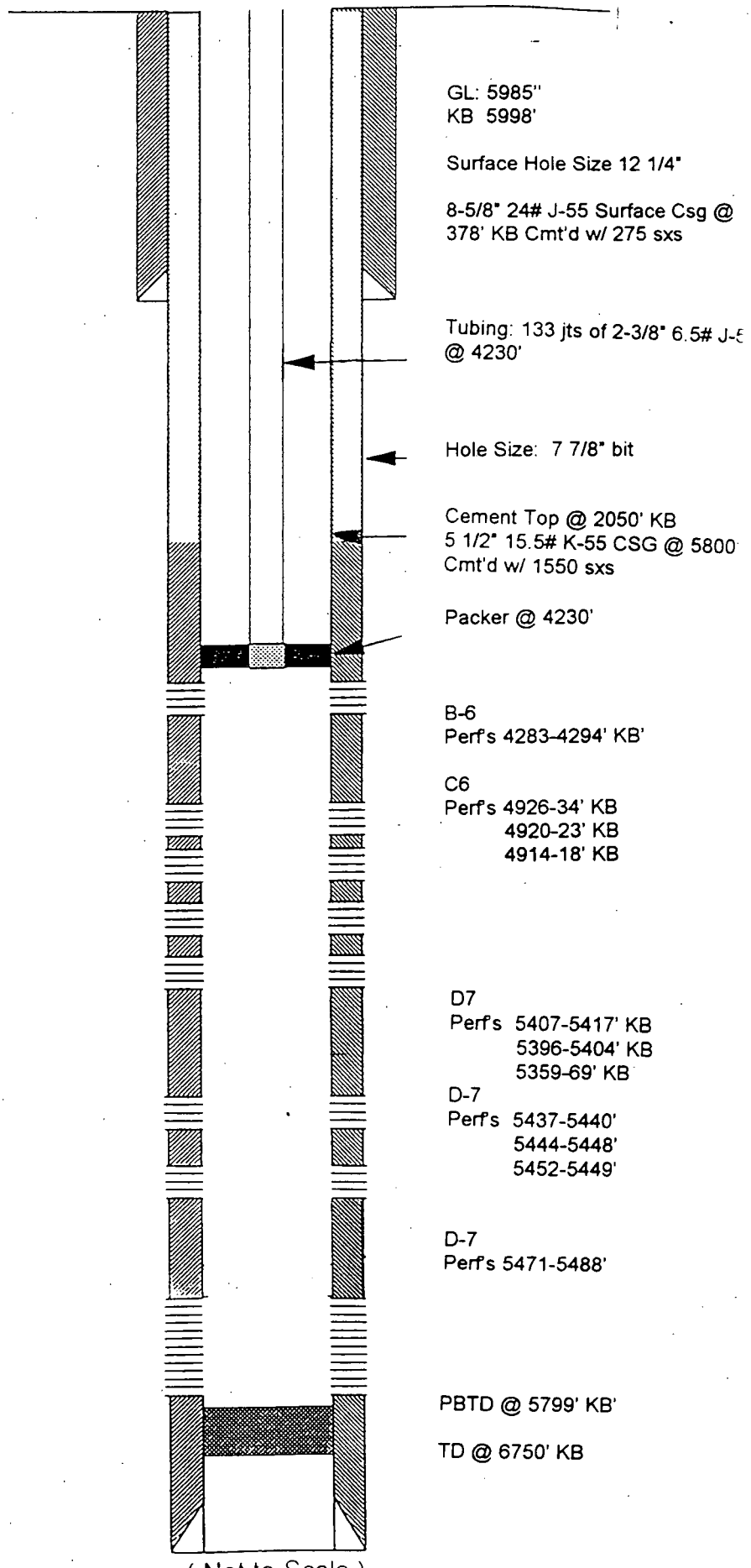
Well History

8/21/91 Spud Well

9/21/91 Perf'd D7 5471-88, 5449-52,5444-48,5437-40
Brk Dwn 2% Kcl water
Frac'd 120,000 # sand
ISIP 2,320 psi

10/27/91 Perf'd B6 4283-94
Frac'd 114,500# sand
ISIP 1000 psi

8/24/95 Pump Changes



(Not to Scale)

Petroglyph Operating Co., Inc.

Ute Tribal 05-08

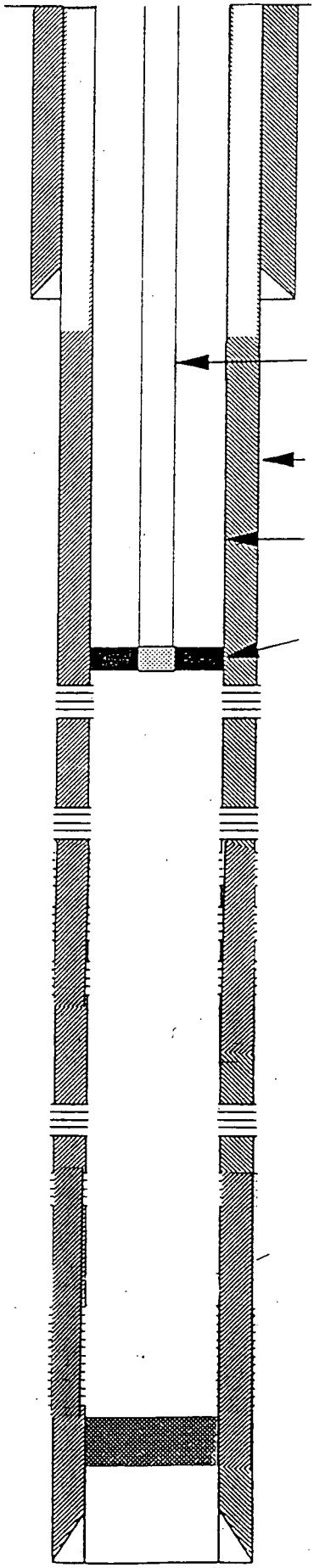
(2500' FNL & 550' FEL)

SE NE Section 5-T5S-R3W
Antelope Creek Field
Duchesne Co, Utah
API #43-013 31306: Lease #14-20-H62-4650

Ute Tribal #29-08A
Wellbore Diagram
After Conversion

Well History:

9/9/91	Spud Well "Coors"
9/12/91	Ran 5 1/2" casing with electric heater sections in 5 1/2" casing string 4810-20, 4674-88' KB.
9/25/91	Perf'd 4812-18' Brk Dwn 7½% HCl Frac'd 85,000# sand ISIP 2,000 psi
10/4/91	Perf'd 4678-86' Brk Dwn 7½% Acid Frac'd 100,00# sand ISIP 2,910 psi
10/15/91	Put well on production



GL: 6558'
KB 6571'

Surface Hole Size 12 1/4"

8-5/8" 24# J-55 Surface Csg @ 412' KB Cmt'd w/ 275 sxs

2 3/8" 4.70 J-55 EUE tubing 149 joints

Hole Size: 7 7/8" bit

Cement Top @ 420' KB
5 1/2" 15.5# K-55 CSG @ 6074'
5 1/2" casing heaters 4810-20', 4674-88' KB

Cmt'd w/ 850 sxs

Packer @ 4620' KB'

C-4
Perf's 4678-4686' KB

C-6
Perf's 4812-4818' KB

E-1
Perf's 5566-5578' KB

PBTD @ 5964' KB'

TD @ 6700' KB

(Not to Scale)

Petroglyph Operating Co., Inc.

Ute Tribal 29-08A

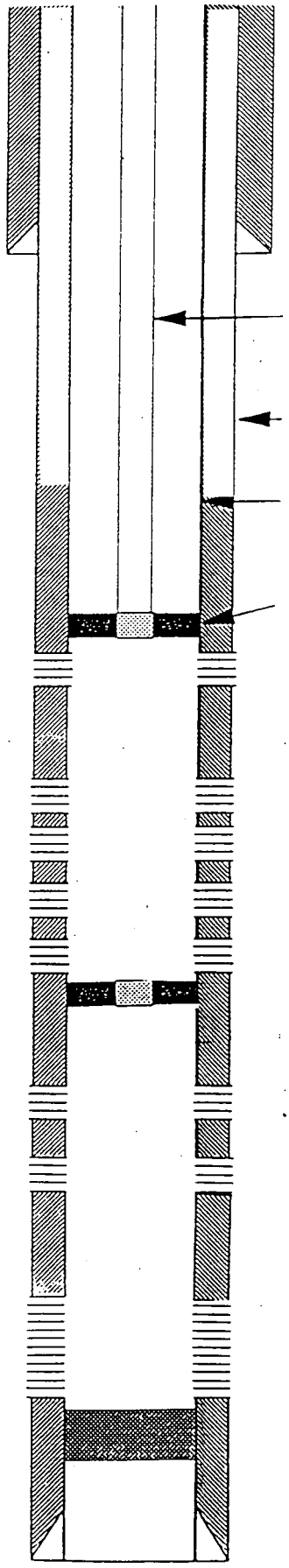
(2600' FNL & 600' FEL)

SE NE Section 29-T5S-R3W
Antelope Creek Field
Duchesne Co, Utah
API #43-013-31305: Lease #14-20-H62-3518

Ute Tribal #05-16
Wellbore Diagram
After Conversion

Well History:

5/24/95	Spud Well
10/12/95	Perf'd D-7 5438-42, 5414-17', 5396-5400', 5390-92', 5374-80', Brk Dwn 2% KCl water Frac'd 57,400# sand , ISIP 2,495 psi
10/13/95	Perf'd D-3 5201-06' KB Brk Dwn 2% KCL water Frac'd 29,500# sand ISIP 1980
10/19/95	Sqeeze cemented D-3 Perfs
10/20/95	Perf'd C-5 4827-32, 4816-20 Perf'd C-6 4934-38, 4908-12, 4918-23 Brk Dwn 2% KCL water Frac'd 67,800# sand ISIP 2070 psi
4/1/96	Re Frac C-6 sand Frac'd 25,500# sand ISIP 1,662 psi



GL: 6049'
KB 6059'

Surface Hole Size 12 1/4"

8-5/8" 24# J-55 Surface Csg @ 434 KB Cmt'd w/ 225 sxs

Tubing: 154 jts of 2-3/8" 6.5# J-55 @ 4770' KB

Hole Size: 7 7/8" bit

Cement Top @ 2750' KB
5 1/2" 15.5# K-55 CSG @ 6147"
Cmt'd w/ 440 sxs

Packer @ 4770' KB

C-5
Perf's 4827-32' KB
4816-20' KB
C6
Perf's 4934-38' KB
4908-12' KB
4918-23' KB

RTBP set at 5080' KB

D-3
Perf's 5201-06' KB
Cement Squeezed'

D-7
Perf's 5438-42' KB
5414-17'
5396-5400'
5390-92'
5374-80'

PBTD @ 6088' KB'

TD @ 6190' KB

(Not to Scale)

Petroglyph Operating Co., Inc.

Ute Tribal 05-16

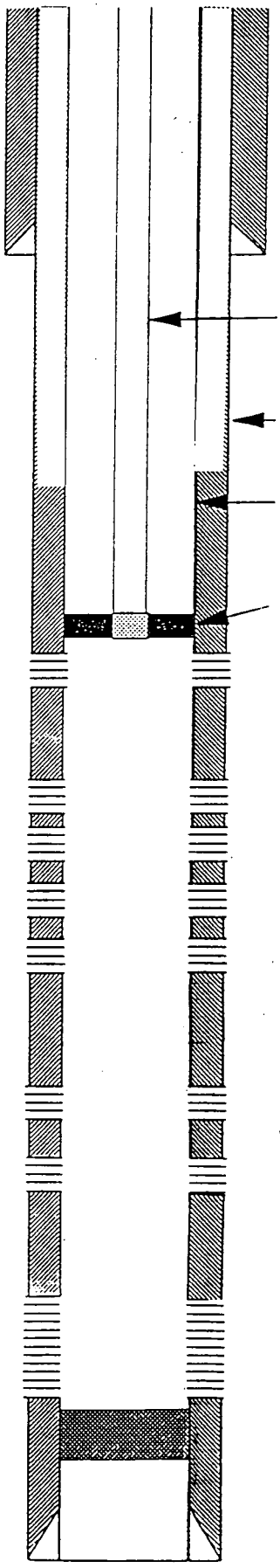
(708' FSL & 523' FEL)

SE SE Section 5-T5S-R3W
Antelope Creek Field
Duchesne Co, Utah
API #43-013 31527: Lease #14-20-H62-3504

Ute Tribal #04-05
Wellbore Diagram
After Conversion

Well History:

5/2/95	Spud Well
10/26/95	Perf'd D-7 5500-04, 5454-60,5418-22 5382-88, 5359-68, 5348-50, Brk Dwn 2% KCl water Frac'd 158,400# sand ISIP 1,950 psi
10/30/95	Perf'd D-3 5228-31 Brk Dwn 2% KCL water Frac'd 22,940# sand ISIP Screen out
11/3/95	Perf'd C5 4848-52 Perf'd C6 4942-48 Brk Dwn 2% KCL water Frac'd 66020# sand ISIP 1,772 psi
11/9/95	Perf'd B11 4564-72 Frac'd 27,700# sand ISIP 1,918 psi
11/14/95	Perf'd B6 4328-36 Frac'd 33,280# sand ISIP 2,078 psi
12/30/95	Date of First Production



GL: 5997'
KB 6007'

Surface Hole Size 12 1/4"

8-5/8" 24# J-55 Surface Csg @
425 KB Cmt'd w/ 350 sxs

Tubing: 139 jts of 2-3/8" 4.7# J-55
@ 4298' KB'

Hole Size: 7 7/8" bit

Cement Top @ 2450' KB
5 1/2" 15.5# K-55 CSG @ 5736"
Cmt'd w/ 1450 sxs

Packer @ 4298'

B-6
Perf's 4328-36' KB'

B-11
Perf's 4564-72' KB

C-5
Perf's 4848-52' KB

C6
Perf's 4942-48

D-3
Perf's 5228-31' KB

D-7
Perf's 5504-5348' KB

PBTD @ 6190' KB'

TD @ 6453' KB

(Not to Scale)

Petroglyph Operating Co., Inc.

Ute Tribal 04-05

(2725' FNL & 660' FWL)

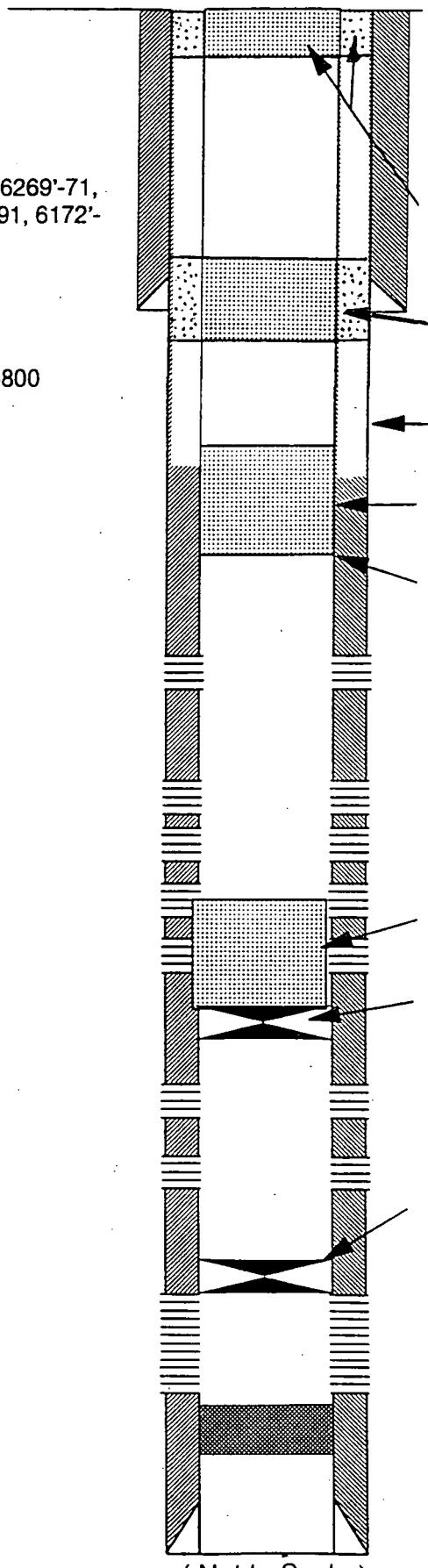
SW NW Section 4-T5S-R3W
Antelope Creek Field
Duchesne Co, Utah
API #43-013 31462: Lease #14-20-H62-3503

Ute Tribal #04-01
Wellbore Diagram
Plugged

Well History:

5/30/83	Spud Well "Coors"
6/24/83	Perf'd 6645'-35, 6525'-30, 6370'-74, Brk Dwn 2% KCl water Frac'd 76,500# sand ISIP 2,500 psi
6/30/83	Perf'd 6325'-26, 6311'-12, 6285'-86, 6269'-71, 6253'-54, 6248'-49, 6229'-31, 6190'-91, 6172'-74, 6160'-67, 6133'-40 Brk Dwn 7½% HCl Frac'd 90,000# sand ISIP 2,500 psi
9/8/83	Perf'd 5846, 43, 40, 36, 04, 03, 02, 5800 Perf'd 5743, 33, 29, 25, 21, 15 Brk Dwn 7½% Acid Frac'd 100,716# sand ISIP 2,700 psi
11/18/83	Perf'd 5477'-92, 5111'-15, 5529'-36 Frac'd 36,000# sand ISIP 2,000 psi
8/22/84	Perf'd 5082'-86, 5281'-85 Frac'd 100,000# sand
7/26/90	Pump Changes
2/7/92	Well Shut In
11/27/92	Acid job Put well back on production

Tubing Detail: 2' psp Packer, 156 jts



(Not to Scale)

Petroglyph Operating Co., Inc.

Ute Tribal 04-01

(1331' FNL & 1277' FEL)

NE NE Section 24-T5S-R3W
Antelope Creek Field
Duchesne Co, Utah
API #43-013 30762: Lease #14-20-H62-3503

Ute Tribal #05-0[redacted]
Wellbore Diagram
Plugged

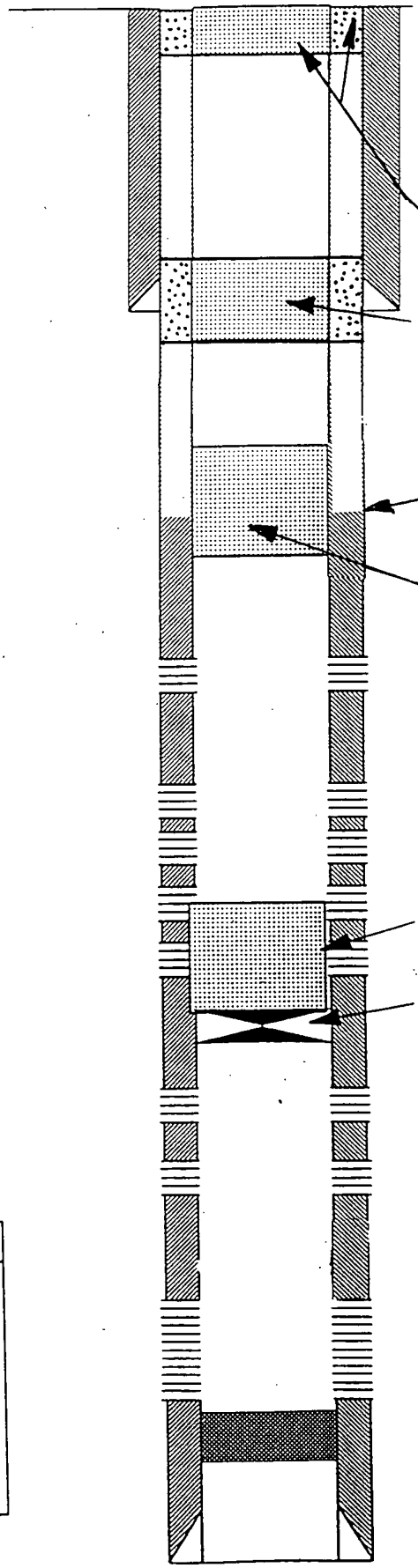
Well History

8/21/91 Spud Well

9/21/91 Perf'd D7 5471-88, 5449-52,5444-48,5437-40
Brk Dwn 2% Kcl water
Frac'd 120,000 # sand
ISIP 2,320 psi

10/27/91 Perf'd B6 4283-94
Frac'd 114,500# sand
ISIP 1000 psi

8/24/95 Pump Changes



GL: 5985"
KB 5998'

Surface Hole Size 12 1/4"

8-5/8" 24# J-55 Surface Csg @
378' KB Cmt'd w/ 275 sxs

Set a cement plug inside of the 5-1/2" casing, surface to 50'. A similiar plug in the 5-1/2" x 8-5/8" annulus.

Perforate production casing for 2', w/4 spf, at a point 50' below surface casing shoe, cement squeeze perfs, POOH leaving 100' cement plug inside 5-1/2" production casing, 50' above and 50' below surface casing shoe.

Cement Top @ 2050' KB
5 1/2" 15.5# K-55 CSG @ 5800'
Cmt'd w/ 1550 sxs

30 sxs Class G cement'
3800' to 4000' KB (200')

B-6
Perf's 4283-4294' KB'

C6
Perf's 4926-34' KB
4920-23' KB
4914-18' KB

CIBP 5300' KB
30 sxs Class "G" cement
5300' 5100' KB (200')

D7
Perf's 5407-5417' KB
5396-5404' KB
5359-69' KB

D-7
Perf's 5437-5440'
5444-5448'
5452-5449'

D-7
Perf's 5471-5488'

PBTD @ 5799' KB'

TD @ 6750' KB

(Not to Scale)

Petroglyph Operating Co., Inc.

Ute Tribal 05-08

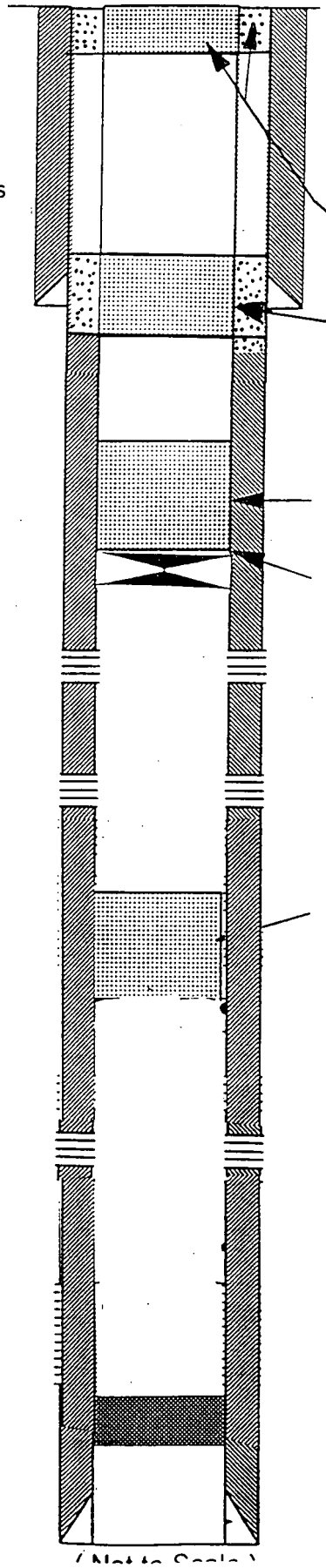
(2500' FNL & 550' FEL)

SE NE Section 5-T5S-R3W
Antelope Creek Field
Duchesne Co, Utah
API #43-013 31306: Lease #14-20-H62-4650

Ute Tribal #29-08A
Wellbore Diagram
Plugged

Well History:

9/9/91	Spud Well "Coors"
9/12/91	Ran 5 1/2" casing with electric heater sections in 5 1/2" casing string 4810-20, 4674-88' KB.
9/25/91	Perf'd 4812-18' Brk Dwn 7½% HCl Frac'd 85,000# sand ISIP 2,000 psi
10/4/91	Perf'd 4678-86' Brk Dwn 7½% Acid Frac'd 100,00# sand ISIP 2,910 psi
10/15/91	Put well on production



GL: 6558'
KB 6571' '

Surface Hole Size 12 1/4"

8-5/8" 24# J-55 Surface Csg @ 412' KB Cmt'd w/ 275 sxs

Set a cement plug inside of the 5-1/2" casing, surface to 50'. A similiar plug in the 5-1/2" x 8-5/8" annulus.

Perforate production casing for 2', w/4 spf, at a point 50' below surface casing shoe, cement squeeze perfs, POOH leaving 100' cement plug inside 5-1/2" production casing, 50' above and 50' below surface casing shoe.

Cement Top @ 420' KB
5 1/2" 15.5# K-55 CSG @ 6074'
5 1/2" casing heaters
4810-20', 4674-88' KB

Cmt'd w/ 850 sxs

CIBP @ 4600' KB'

30 sxs Class "G" cement
4400-4600' KB (200')

C-4
Perf's 4678-4686' KB

C-6
Perf's 4812-4818' KB

30 sxs Class "G" cement
4400-4600' KB (200')

E-1
Perf's 5566-5578' KB

PBTD @ 5964' KB'

TD @ 6700' KB

(Not to Scale)

Petroglyph Operating Co., Inc.

Ute Tribal 29-08A

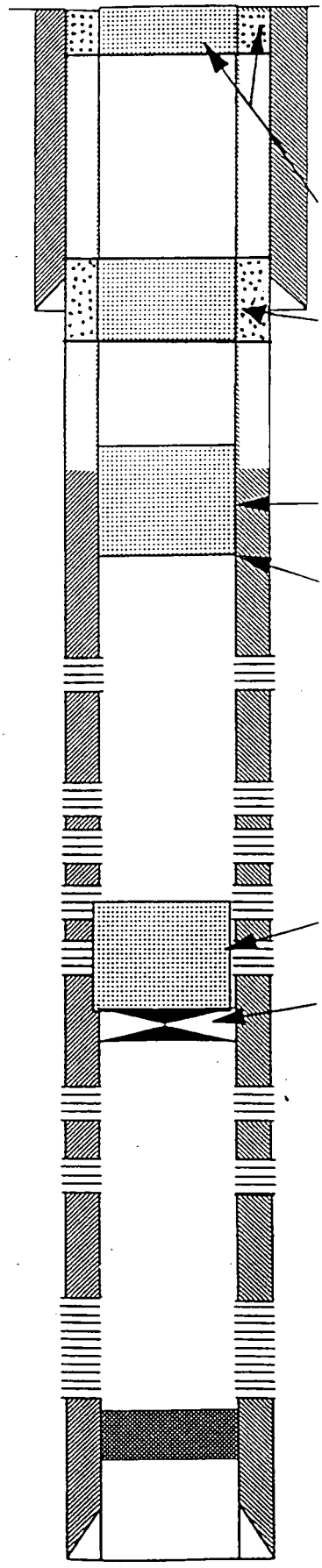
(2600' FNL & 600' FEL)

SE NE Section 29-T5S-R3W
Antelope Creek Field
Duchesne Co, Utah
API #43-013-31305: Lease #14-20-H62-3518

Ute Tribal #05-16
Wellbore Diagram
Plugged

Well History:

5/24/95	Spud Well
10/12/95	Perf'd D-7 5438-42, 5414-17', 5396-5400', 5390-92', 5374-80', Brk Dwn 2% KCl water Frac'd 57,400# sand ISIP 2,495 psi
10/13/95	Perf'd D-3 5201-06' KB Brk Dwn 2% KCL water Frac'd 29,500# sand ISIP 1980
10/19/95	Sqeeze cemented D-3 Perfs
10/20/95	Perf'd C-5 4827-32, 4816-20 Perf'd C-6 4934-38, 4908-12, 4918-23 Brk Dwn 2% KCL water Frac'd 67,800# sand ISIP 2070 psi
4/1/96	Re Frac C-6 sand Frac'd 25,500# sand ISIP 1,662 psi



GL: 6049'
KB 6059'

Surface Hole Size 12 1/4"

8-5/8" 24# J-55 Surface Csg @ 434 KB Cmt'd w/ 225 sxs

Set a cement plug inside of the 5-1/2" casing, surface to 50'. A similiar plug in the 5-1/2" x 8-5/8" annulus.

Perforate production casing for 2', w/4 spf, at a point 50' below surface casing shoe, cement squeeze perfs, POOH leaving 100' cement plug inside 5-1/2" production casing, 50' above and 50' below surface casing shoe.

Cement Top @ 2750' KB
5 1/2" 15.5# K-55 CSG @ 6147"
Cmt'd w/ 440 sxs

30 sxs Class "G" cement
4800'-4600' (200')

C-5
Perf's 4827-32' KB
4816-20' KB
C6
Perf's 4934-38' KB
4908-12' KB
4918-23' KB
D-3
Perf's 5201-06' KB
Cement Squeezed'

30 sxs Class "G" cement
5300-5100' (200')
CIBP 5300'

D-7
Perf's 5438-42' KB
5414-17'
5396-5400'
5390-92'
5374-80'

PBTD @ 6088' KB'

TD @ 6190' KB

(Not to Scale)

Petroglyph Operating Co., Inc.

Ute Tribal 05-16

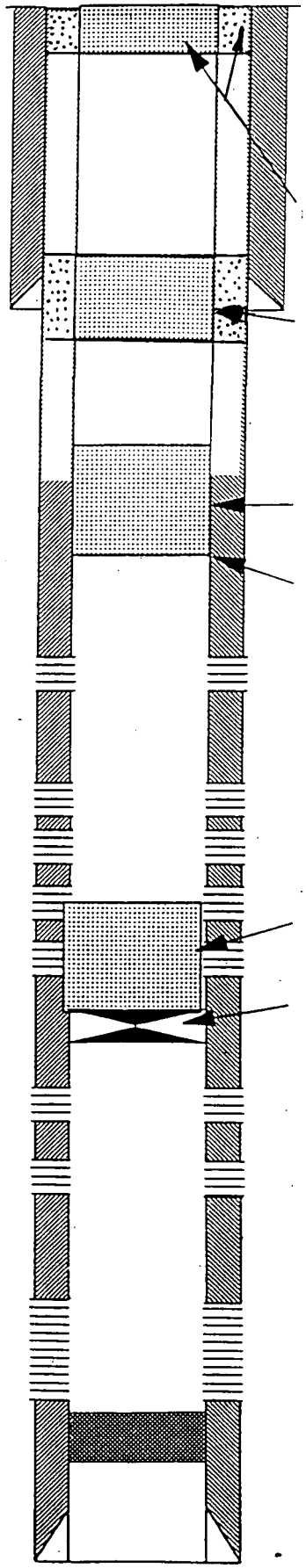
(708' FSL & 523' FEL)

SE SE Section 5-T5S-R3W
Antelope Creek Field
Duchesne Co, Utah
API #43-013 31527: Lease #14-20-H62-3504

Ute Tribal #04-05
Wellbore Diagram
Plugged

Well History:

5/2/95	Spud Well
10/26/95	Perf'd D-7 5500-04, 5454-60,5418-22 5382-88, 5359-68, 5348-50, Brk Dwn 2% KCl water Frac'd 158,400# sand ISIP 1,950 psi
10/30/95	Perf'd D-3 5228-31 Brk Dwn 2% KCL water Frac'd 22,940# sand ISIP Screen out
11/3/95	Perf'd C5 4848-52 Perf'd C6 4942-48 Brk Dwn 2% KCL water Frac'd 66020# sand ISIP 1,772 psi
11/9/95	Perf'd B11 4564-72 Frac'd 27,700# sand ISIP 1,918 psi
11/14/95	Perf'd B6 4328-36 Frac'd 33,280# sand ISIP 2,078 psi
12/30/95	Date of First Production



GL: 5997'
KB 6007'

Surface Hole Size 12 1/4"

8-5/8" 24# J-55 Surface Csg @
425 KB Cmt'd w/ 350 sxs

Set a cement plug inside of the 5-1/2" casing, surface to 50'. A similiar plug in the 5-1/2" x 8-5/8" annulus.

Perforate production casing for 2', w/4 spf, at a point 50' below surface casing shoe, cement squeeze perfs, POOH leaving 100' cement plug inside 5-1/2" production casing, 50' above and 50' below surface casing shoe.

Cement Top @ 2450' KB
5 1/2" 15.5# K-55 CSG @ 5736"
Cmt'd w/ 1450 sxs

30 sxs Class "G" cement
3800' - 4000' KB (200')

B-6
Perf's 4328-36' KB'

B-11
Perf's 4564-72' KB

C-5
Perf's 4848-52' KB

C6
Perf's 4942-48

30 sxs Class "G" cement
5300' 5100' KB (200')
CIBP 5300' KB

D-3
Perf's 5228-31' KB

30 sxs Class "G" cement
5300' 5100' KB (200')
CIBP 5300' KB

D-7
Perf's 5504-5348' KB

PBTD @ 6190' KB'

TD @ 6453' KB

(Not to Scale)

Petroglyph Operating Co., Inc.

Ute Tribal 04-05

(2725' FNL & 660' FWL)

SW NW Section 4-T5S-R3W
Antelope Creek Field
Duchesne Co, Utah
API #43-013 31462: Lease #14-20-H62-3503

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION VIII
999 18th STREET - SUITE 500
DENVER, COLORADO 80202-2466

JUL -6 1995

Ref: 8WM-DW

MEMORANDUM

SUBJECT: **Final Guidance for Conducting a Pressure Test to Determine if a Well Has Leaks in the Tubing, Casing or Packer**

FROM: Tom Pike, Chief UIC Direct Implementation

TO: UIC Direct Implementation Permit Writers

Introduction

The Underground Injection Control (UIC) regulations require that an injection well have mechanical integrity at all times (40 CFR 144.28 (f)(2) and 40 CFR 144.51 (q)(1)). A well has mechanical integrity (40 CFR 146.8) if:

(1) There is no significant leak in the tubing, casing or packer; and

(2) There is no significant fluid movement into an underground source of drinking water (USDW) through vertical channels adjacent to the injection wellbore.

Definition: Mechanical Integrity Pressure Test for Part I. A pressure test used to determine the integrity of all the downhole components of an injection well, usually tubing,casing and packer. It is also used to test tubing cemented in the hole by using a tubing plug or retrievable packer. Pressure tests must be run at least once every five years. **If for any reason the tubing/packer is pulled, the injection well is required to pass another mechanical integrity test of the tubing casing and packer prior to recommencing injection regardless of when the last test was conducted. Tests run by operators in the absence of an EPA inspector must be conducted according to these procedures and recorded on either the attached form or an equilivant form containing the necessary information. A pressure recording chart documentating the actual annulus test pressures must be attached to the form.**

This guidance addresses making a determination of Part I of Mechanical Integrity (no leaks in the tubing, casing or

packer). The Region's policy is: 1) to determine if there are significant leaks in the tubing, casing or packer; 2) to assure that the casing can withstand pressure similar to that which would be applied if the tubing or packer fails; 3) to make the Region's test procedure consistent with the procedures utilized by other Region VIII Primacy programs; and 4) to provide a procedure which can be easily administered and is applicable to all class I and II wells. Although there are several methods allowed for determining mechanical integrity, the principal method involves running a pressure test of the tubing/casing annulus. Region VIII's procedure for running a pressure test is intended to aid UIC field inspectors who witness pressure tests for the purpose of demonstrating that a well has Part I of Mechanical Integrity. The guidance is also intended as a means of informing operators of the procedures required for conducting the test in the absence of an EPA inspector.

Pressure Test Description

Test Frequency

The mechanical integrity of an injection well must be maintained at all times. Mechanical integrity pressure tests are required at least every five (5) years. **If for any reason the tubing/packer is pulled, however, the injection well is required to pass another mechanical integrity test prior to recommencing injection regardless of when the last test was conducted. The Regional UIC program must be notified of the workover and the proposed date of the pressure test. The well's test cycle would then start from the date of the new test if the well passes the test and documentation is adequate.** Tests may be required on a more frequent basis depending on the nature of the injectate and the construction of the well (see Section guidance on MITs for wells with cemented tubing and regulations for Class I wells).

Region VIII's criteria for well testing frequency is as follows:

1. Class I hazardous waste injection wells; initially [40 CFR 146.68(d)(1)] and annually thereafter;

2. Class I non-hazardous waste injection wells; initially and every two (2) years thereafter, except for old permits (such as the disposal wells at carbon dioxide extraction plants which require a test at least every five years);

3. Class II wells with tubing, casing and packer; initially and at least every five (5) years thereafter;

4. Class II wells with tubing cemented in the hole; initially and every one (1) or two (2) years thereafter depending on well specific conditions (See Region VIII UIC Section Guidance #36);

5. Class II wells which have been temporarily abandoned (TAd) must be pressure tested after being shut-in for two years; and

6. Class III uranium extraction wells; initially.

Test Pressure

To assure that the test pressure will detect significant leaks and that the casing is subjected to pressure similar to that which would be applied if the tubing or packer fails, the tubing/casing annulus should be tested at a pressure equal to the maximum allowed injection pressure or 1000 psig whichever is less. The annular test pressure must, however, have a difference of at least 200 psig either greater or less than the injection tubing pressure. Wells which inject at pressures of less than 300 psig must test at a minimum pressure of 300 psig, and the pressure difference between the annulus and the injection tubing must be at least 200 psi.

Test Criteria

1. The duration of the pressure test is 30 minutes.

2. Both the annulus and tubing pressures should be monitored and recorded every five (5) minutes.

3. If there is a pressure change of 10 percent or more from the initial test pressure during the 30 minute duration, the well has failed to demonstrate mechanical integity and should be shut-in until it is repaired or plugged.

4. A pressure change of 10 percent or more is considered significant. If there is no significant pressure change in 30 minutes from the time that the pressure source is disconnected from the annulus, the test may be completed as passed

Recordkeeping and Reporting

The test results must be recorded on the attached form. The annulus pressure should be recorded at five (5) minute intervals. **Tests run by operators in the absence of an EPA inspector must be conducted according to these procedures and recorded on the attached form or an equilivant form . A pressure recording chart documentating the actual annulus test pressures must be attached to the submittal.** The tubing pressure at the beginning and end of each test must be recorded. The volume of the annulus fluid bled back at the surface after the test should be measured and recorded on the form. This can be done by bleeding the annulus pressure off and discharging the associated fluid into a five gallon container. The volume information can be used to verify the approximate location of the packer.

Procedures for Pressure Test

1. Scheduling the test should be done at least two (2) weeks in advance.

2. Information on the well completion (location of the packer, location of perforations, previous cement work on the casing, size of casing and tubing, etc.) and the results of the previous MIT test should be reviewed by the field inspector in advance of the test. Regional UIC Guidance #35 should also be reviewed. Information relating to the previous MIT and any well workovers should be reviewed and taken into the field for verification purposes.

3. All Class I wells and Class II SWD wells should be shut-in prior to the test. A 12 to 24-hour shut-in is preferable to assure that the temperature of the fluid in the wellbore is stable.

4. Class II enhanced recovery wells may be operating during the test, but it is recommended that the well be shut-in if possible.

5. The operator should fill the casing/tubing annulus with inhibited fluid at least 24 hours in advance, if possible. Filling the annulus should be undertaken through one valve with the second valve open to allow air to escape. After the operator has filled the annulus, a check should be made to assure that the annulus will remain full. If the annulus can not maintain a full column of fluid, the operator should notify the Director and begin a rework. The operator should measure and report the volume of fluid added to

the annulus. If not already the case, the casing/tubing valves should be closed, at least, 24 hours prior to the pressure test.

Following steps are at the well:

6. Read tubing pressure and record on the form. If the well is shut-in, the reported information on the actual maximum operating pressure should be used to determine test pressures.

7. Read pressure on the casing/tubing annulus and record value on the form. If there is pressure on the annulus, it should be bled off prior to the test. If the pressure will not bleed-off, the guidance on well failures (Region VIII UIC Section Guidance #35) should be followed.

8. Ask the operator for the date of the last workover and the volume of fluid added to the annulus prior to this test and record information on the form.

9. Hook-up well to pressure source and apply pressure until test value is reached.

10. Immediately disconnect pressure source and start test time. (If there has been a significant drop in pressure during the process of disconnection, the test may have to be restarted.) The pressure gages used to monitor injection tubing pressure and annulus pressure should have a pressure range which will allow the test pressure to be near the mid-range of the gage. Additionally, the gage must be of sufficient accuracy and scale to allow an accurate reading of a 10 percent change to be read. For instance, a test pressure of 600 psi should be monitored with a 0 to 1000 psi gage. The scale should be incremented in 20 psi increments.

11. Record tubing and annulus pressure values every five (5) minutes.

12. At the end of the test, record the final tubing pressure.

13. If the test fails, check the valves, bull plugs and casing head close up for possible leaks. The well should be retested.

14. If the second test indicates a well failure, the Region should be informed of the failure within 24 hours by the operator, and the well should be shut-in within 48 hours per Headquarters guidance #76. A follow-up

letter should be prepared by the operator which outlines the cause of the MIT failure and proposes a potential course of action. This report should be submitted to EPA within five days.

15. Bleed off well into a bucket, if possible, to obtain a volume estimate. This should be compared to the calculated value obtained using the casing/tubing annulus volume and fluid compressibility values.

16. Return to office and prepare follow-up.

Attachment

Form Approved. OMB No. 2000-0042. Approval expires 9-30-86

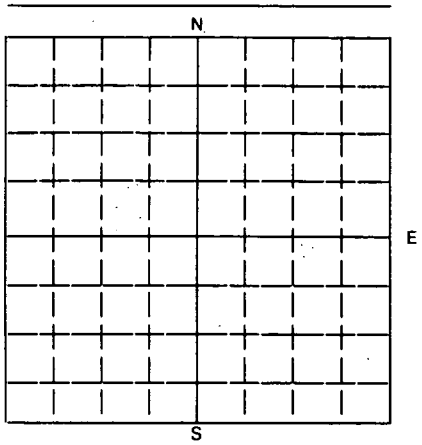
EPA

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

WELL REWORK RECORD

NAME AND ADDRESS OF PERMITTEE	NAME AND ADDRESS OF CONTRACTOR

LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT — 640 ACRES



STATE	COUNTY	PERMIT NUMBER

SURFACE LOCATION DESCRIPTION

¼ OF ¼ OF ¼ SECTION TOWNSHIP RANGE

LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT

Surface Location _____ ft. from (N/S) _____ Line of quarter section

and _____ ft. from (E/W) _____ Line of quarter section

WELL ACTIVITY		TYPE OF PERMIT
☐ Brine Disposal ☐ Enhanced Recovery ☐ Hydrocarbon Storage	Total Depth Before Rework	☐ Individual ☐ Area Number of Wells _____
	Total Depth After Rework	
Lease Name	Date Rework Commenced	Well Number
	Date Rework Completed	

WELL CASING RECORD — BEFORE REWORK

Casing		Cement		Perforations		Acid or Fracture Treatment Record
Size	Depth	Sacks	Type	From	To	

WELL CASING RECORD — AFTER REWORK *(Indicate Additions and Changes Only)*

Casing		Cement		Perforations		Acid or Fracture Treatment Record
Size	Depth	Sacks	Type	From	To	

DESCRIBE REWORK OPERATIONS IN DETAIL USE ADDITIONAL SHEETS IF NECESSARY	WIRE LINE LOGS, LIST EACH TYPE	
	Log Types	Logged Intervals

CERTIFICATION

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32).

NAME AND OFFICIAL TITLE *(Please type or print)*	SIGNATURE	DATE SIGNED

Form Approved. OMB No. 2000-0042. Approval expires 9-30-86

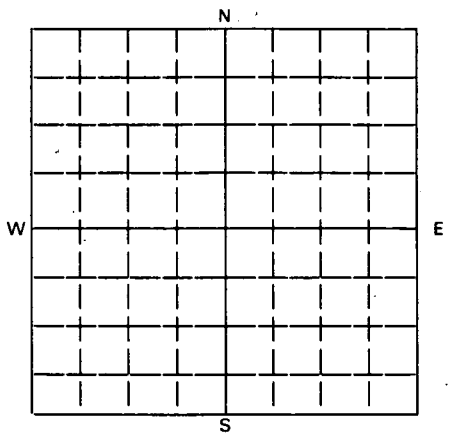
EPA

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

WELL REWORK RECORD

NAME AND ADDRESS OF PERMITTEE	NAME AND ADDRESS OF CONTRACTOR

LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT — 640 ACRES



STATE	COUNTY	PERMIT NUMBER

SURFACE LOCATION DESCRIPTION

¼ OF ¼ OF ¼ SECTION TOWNSHIP RANGE

LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT

Surface Location ____ ft. from (N/S) ____ Line of quarter section

and ____ ft. from (E/W) ____ Line of quarter section

WELL ACTIVITY		TYPE OF PERMIT
☐ Brine Disposal ☐ Enhanced Recovery ☐ Hydrocarbon Storage	Total Depth Before Rework	☐ Individual ☐ Area Number of Wells ____
	Total Depth After Rework	
Lease Name	Date Rework Commenced	Well Number
	Date Rework Completed	

WELL CASING RECORD — BEFORE REWORK

Casing		Cement		Perforations		Acid or Fracture
Size	Depth	Sacks	Type	From	To	Treatment Record

WELL CASING RECORD — AFTER REWORK *(Indicate Additions and Changes Only)*

Casing		Cement		Perforations		Acid or Fracture
Size	Depth	Sacks	Type	From	To	Treatment Record

DESCRIBE REWORK OPERATIONS IN DETAIL USE ADDITIONAL SHEETS IF NECESSARY	WIRE LINE LOGS, LIST EACH TYPE	
	Log Types	Logged Intervals

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NAME AND OFFICIAL TITLE *(Please type or print)*	SIGNATURE	DATE SIGNED